

Flight, August 26, 1911.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

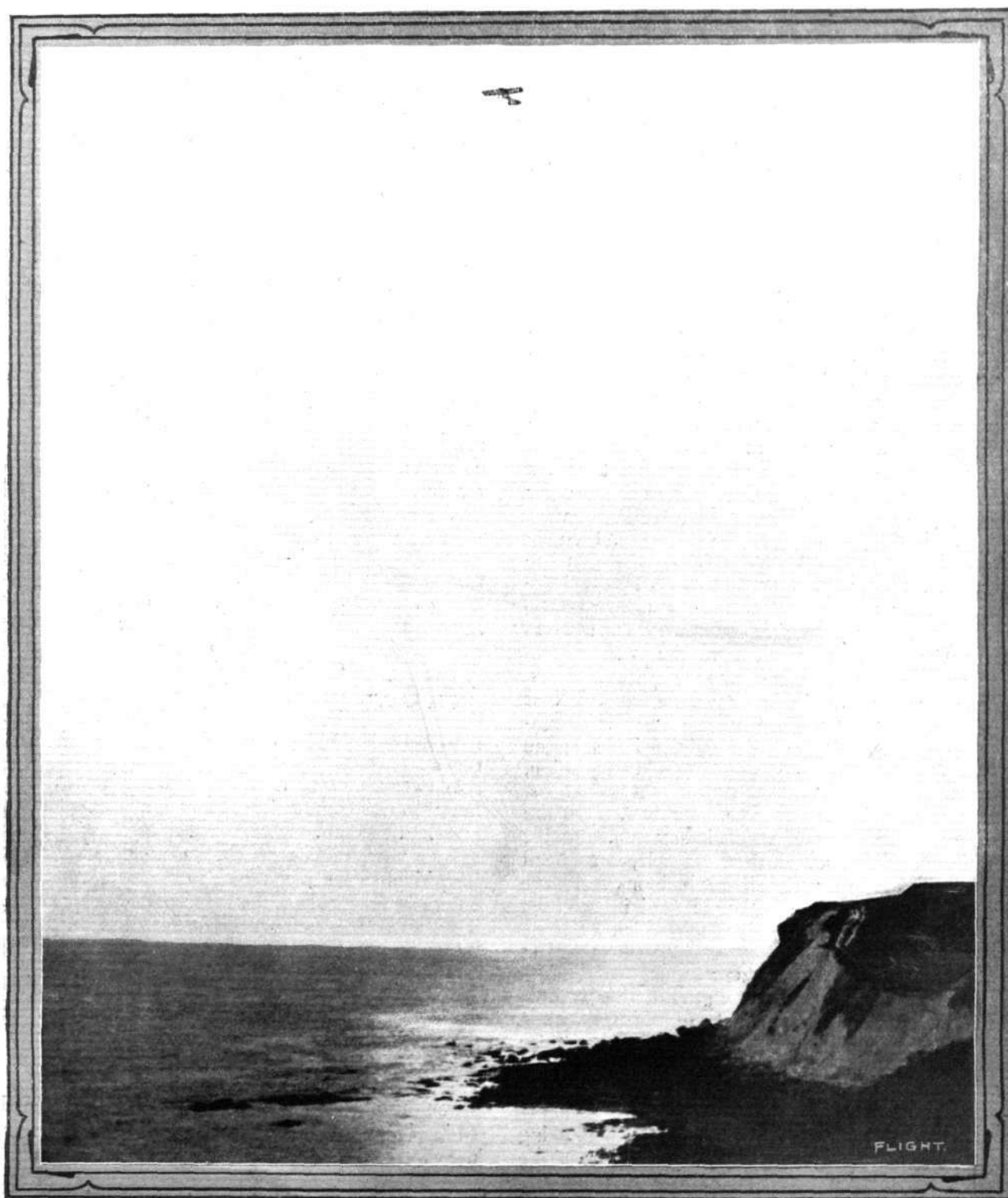
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THE FLYING WEEK IN THE ISLE OF WIGHT.—Mr. Valentine making a high flight over the sea on his Deperdussin monoplaner at Ventnor.

EDITORIAL COMMENT.

Military Aviation in France.

It cannot be otherwise than distasteful to the patriotic British journalist in touch with the progress of aviation to be constantly under the necessity of pointing out how much better the Governments of foreign countries do things than our own. But we should be entirely wanting in the fulfilment of our duty were we to ignore the strides that are being made abroad in the perfecting of a system of aerial defence, and particularly in the case of our one time hereditary enemy, now fortunately our very good friend and ally, France. It is not so much the fact that the French Government is alive to the exigencies of the situation that gives us to think furiously as that the Press of the country and even that somewhat nebulous individual whom we know as the man in the street exhibits a grasp of the subject and a knowledge of its effects and its working which is altogether wanting on this side of the Channel. So far as the latter aspect of the question is concerned, it is fair, perhaps, to argue that it is for the Government to give us a lead. Even now aviation is in its swaddling clothes, and to some extent our friend in the street can hardly be expected to manifest a thorough grasp of a subject in which he is still relatively uninstructed. He has already realised to the full the fact that aviation is now to be ranked among the assured sciences, and having grasped so much he has something of an idea that the aeroplane and the dirigible may happily have some sort of an influence on the warfare of the future. But all the details of this he leaves to those he employs for the purpose of ensuring that he may rest quietly in his bed. If they tell him that it is a matter of urgent national concern that we should spend a million on aeroplanes he will possibly pull a wry face at the prospect of still further additions to his burden of taxation, but he will reason that these people are experts whom he pays for their knowledge of their business and will pass judgment accordingly. If they pooh-pooh the necessity, then he will agree with them, for they are his advisers in the matter. Now, the position is that his advisers have taken up the latter position—and there is no more to be said. The pronouncements of those who are able to see ahead are as voices crying in the wilderness—and our possible enemies go steadily ahead of us. Contrast this with what is going on in France. Next month will see the inauguration of the French War Department trials of aeroplanes, and already the Press of the country teems with discussion—well-informed discussion, too—of the possible lessons to be learnt from these tests. As in all matters which are open to argument, there are two schools of opinion, one of which, led by Gen. Cherfils, holds that the balloon, spherical or dirigible, is as dead as Herod, while the other argues that balloons still have their military uses. We are not concerned in the least—at the present moment, at any rate—which of these schools may be right, but we do think that the mere fact of there being two sharply divided schools of thought argues that aviation has obtained a grip of the national mind which must be of infinite help in the progress of aviation. It is thus, by a ready grasp of the possibilities of the future, that France, led by its Government, has obtained the lead in aerial science and will retain that lead until we—or some other more progressive nation—wake up to the realisation that there is really something in it. The French authorities and the nation itself see

quite clearly that if the portents convey a proper index to the trend of things, the next great war will be decided in the air, and to that end they are working with a view to making France the undisputed mistress of the air. It stands out plainly in the columns of every responsible journal in the country. The people have had it drilled into them until they realise it to the full and as a nation are fully and intelligently instructed in all they need to know of aviation. Here it is still a species of nine-day wonder, and we are again minded to ask, "How long?"

The Control of Aerial Traffic.

In the foregoing we have to some extent traversed the want of real understanding of aviation which is really the salient point in the public regard of the science. We have inferred that little or no real interest is manifested in it by the ordinary person, and we maintain that we are right from the point of view from which we have approached the subject. There is, however, one section of the public which exhibits some sort of interest in the movement, and that is the one which has a chronic desire to see restrictions of some sort placed on everything, from flying to backgammon. There has been an outcry of sorts lately regarding the alleged *laches* of the Brooklands contingent, and we hasten to say that there may possibly be some ground of complaint regarding the behaviour of one or two on certain isolated occasions. We have nothing to say in defence of the aviator who makes of himself a public nuisance. The remarkable thing about such complaints as have been made, however, is that they inevitably bring in their train a whole series of suggestions for dealing repressively with the complete race of aviators, ranging from shooting on sight to the simple summons for trespassing in the air above the village common. It is deplorable that these things should be, for they argue what we have already endeavoured to point out, a want of proper understanding of the true incidence of a new science. By all means let us agree on some sort of codified rule of the air as soon as things are ripe for its application, but it does seem a thousand pities that good brains should be wasted in the evolution of futile suggestions whose whole trend is in a repressive direction.

"Any Old Clo'."

Once again we notice that a public-spirited citizen has come forward to get the Government out of a hole. "An Englishman from Beyond the Seas" has given the War Office the substantial sum of £10,000 wherewith to provide a rifle range near to one of the most thickly populated towns in the United Kingdom—and the War Office has accepted the gift. We are getting used to this sort of thing now, this charitable coming forward of the individual to do what the State should perform for itself. There was the Lebaudy airship of unhappy memory. Then there was the *Daily Mail* airship garage at Wormwood Scrubbs; the four Valkyries presented to a grateful Government by Mr. Barber; and the gift of a stud-farm for the breeding of army horses. What will be the next thing? Perhaps we shall hear before long of a movement among the Israelitish dealers in "old clo'" for presenting the nation's "cast-offs" to the Government for distribution among deserving members of the—well, we will not specify the particular department we have in mind. But seriously, it is coming to something when we as a nation are driven to progress through the medium of charity.

FLIGHT PIONEERS.



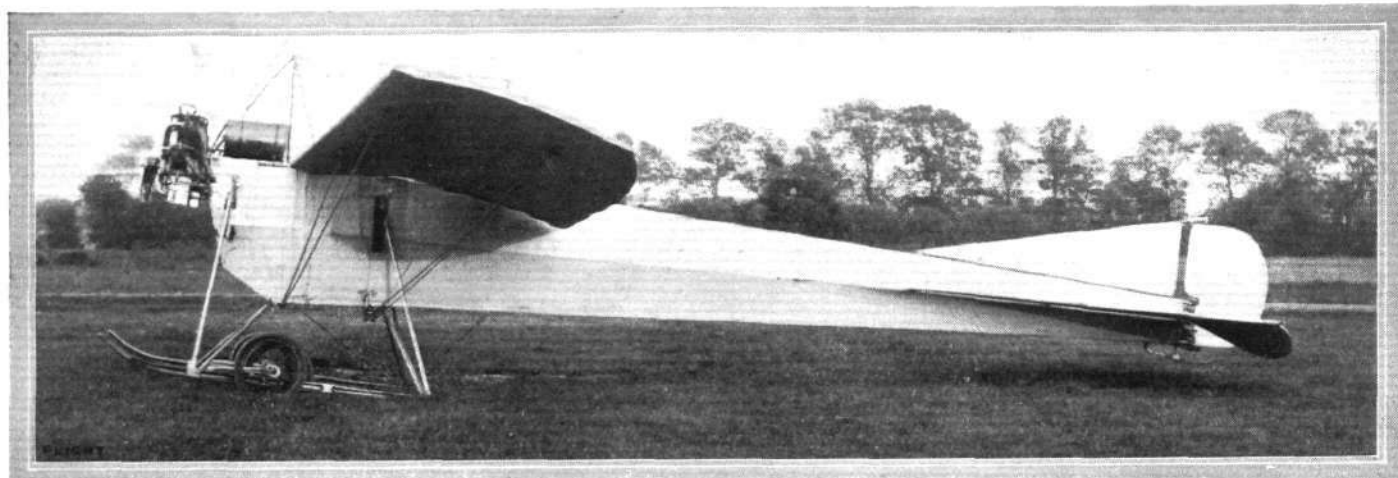
MRS. MAURICE HEWLETT,

Who last week, on a Henry Farman biplane, secured her pilot's certificate from the Royal Aero Club, being the first British brevet issued to any woman. Mrs. Hewlett has received her tuition from Mr. Blondeau at Brooklands, and our picture above shows her in her aviation costume, the inset portrait being Mrs. Hewlett in ordinary life.

THE VICKERS MONOPLANE.

It is only typical of the unerring foresight that Messrs. Vickers exhibit in all their new undertakings that they should have turned some of their vast energy to aeroplane construction, and further

monoplane, in fact it only appears in three places, the rear skid, the two main skids, and the wings. The wings are going to have metal booms, and there is little doubt that, in these times of rapid advance-



The Vickers Monoplane.—Side view, showing the protruding engine and the manner in which the wing trusses are carried to the base of the fuselage. An idea of the wing cross section may also be gathered.

that, in doing so, should commence work on such a successful and well developed machine as the R.E.P. monoplane.

The experience of such a pioneer as Robert Esnault-Pelterie counts for a good deal under any circumstances, but coupled with

ment, all these parts will be fashioned from steel, much in the same way as in motor car construction the wooden chassis frame, even though armoured with metal, had soon to give way to the neat and homogeneous steel stamping.



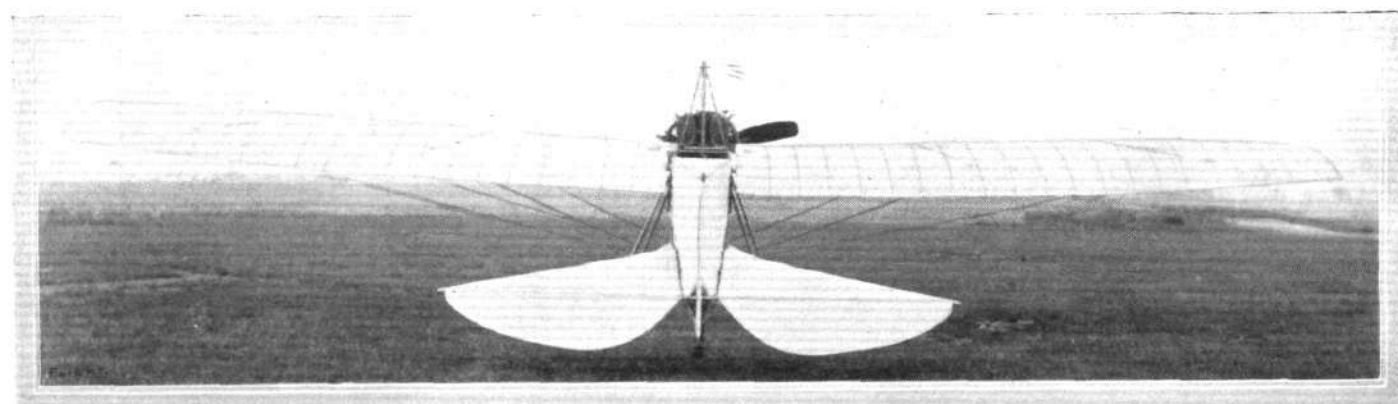
The Vickers Monoplane.—Front view.

the unique facilities for the commercial manufacture of aircraft that Messrs. Vickers possess, it means that the firm has but to get its organisation established for this department to be a success forthwith.

In this also, however, they are happily situated in having such

The body framework is built up of steel tubing, cross-braced with piano wire, and, covered with fabric, possesses excellent streamline form.

The 60-h.p. R.E.P. motor protrudes from the front of the fuselage,



The Vickers monoplane, as seen from behind.

able services as those of Captain Wood and Mr. Archibald Low, M.A., to assist them in their new departure.

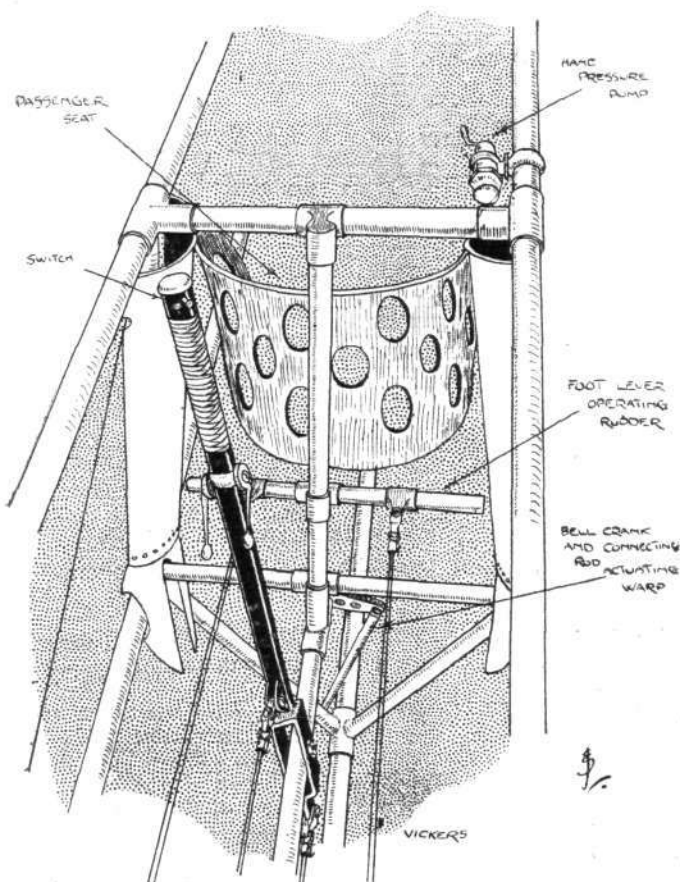
Timber is very little used in the construction of the Vickers

and from its mounting bracket the body rapidly deepens, and assumes its maximum cross-section in the neighbourhood of the pilot's seat.

■ This deep body is an excellent point, as not only does it form a good directive keel but it enables the wing trusses and warp operating cables to be carried to its lower longitudinal member and not as in most other machines to a portion of the chassis, a part that is always liable to serious derangement.

The Vickers landing carriage, at first sight, is strongly reminiscent of Henry Farman practice, but on closer inspection it will be observed that the shorter chassis struts are pivoted to the bottom boom of the body and that the longer struts are connected to collars that slide up and down the steel fuselage columns against the tension of strong cotton covered rubber cord.

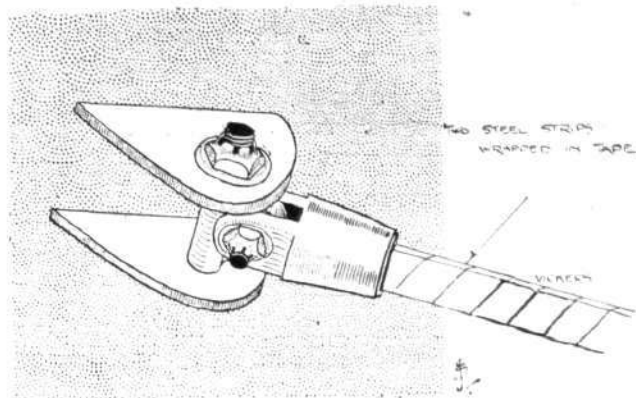
By this means the under-carriage is endowed with a double amount of flexibility—that of the Farman and R.E.P. combined—



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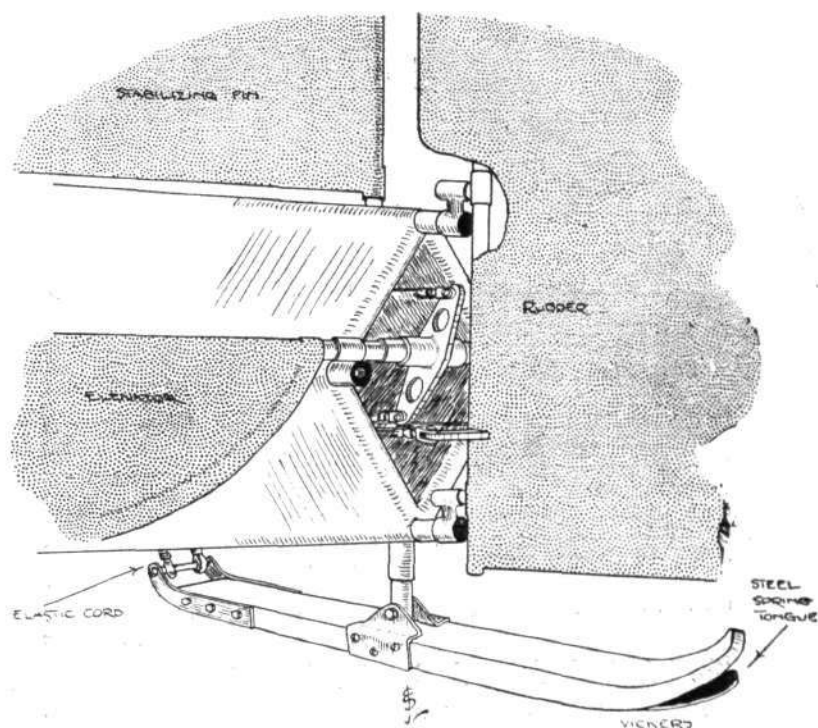
Details of control, sketched from the pilot's seat of the Vickers monoplane.

while it has the advantage of being very little heavier than the ormer and certainly much lighter than the latter. It is flexible enough to enable the pilot to negotiate ploughed land with comparative comfort, and also, which is very important, it has a good wide track to prevent the machine canting over on to its wing tips.



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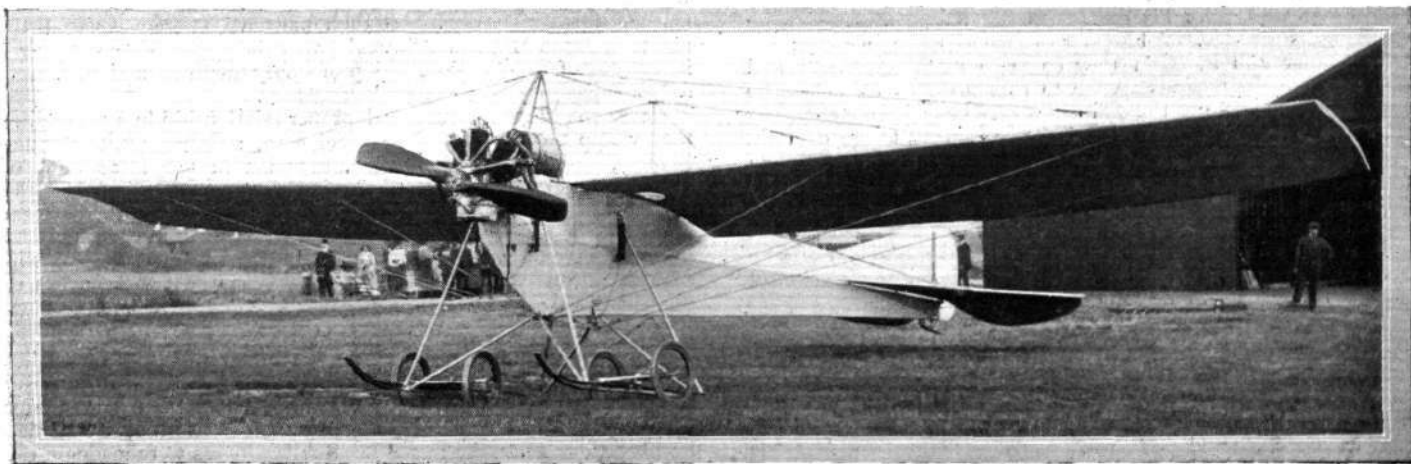
Details of the wing-truss attachment on the Vickers monoplane.



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The Vickers Monoplane.—Sketch of tail, showing how the control wires are carried from the short levers on elevator and rudder through the body.

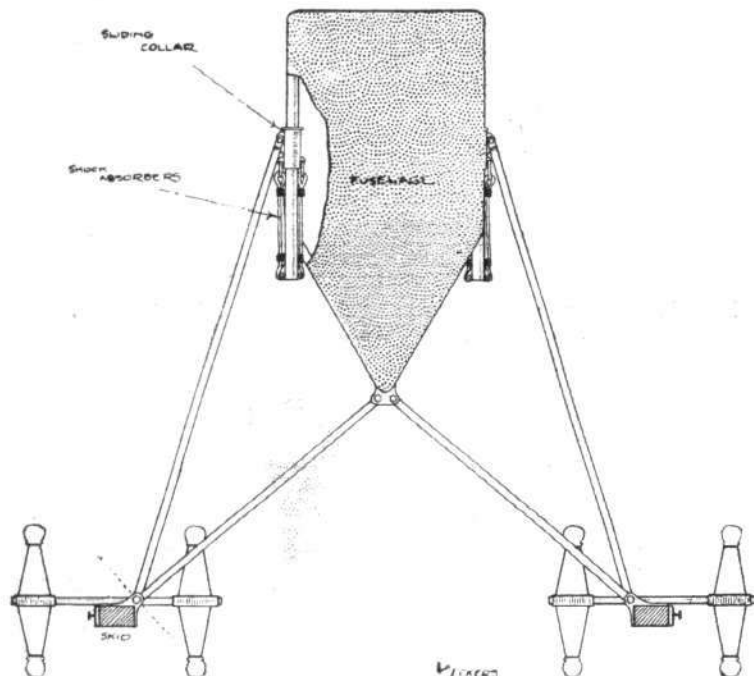
The wings are of wood and steel construction and taper from the body to the tips. They are particularly efficient, being of a modified



The Vickers monoplane, illustrating general arrangement of supporting surfaces, undercarriage, &c.

Phillips cross-section, as they have not the slightest difficulty in lifting this machine, in which the cutting down of weight has been ignored in favour of solid strength.

The way in which the wing trusses are fastened to the main booms and also to the fuselage is interesting, and it is refreshing to find another constructor who is not content to trust the life of the aviator



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Diagrammatic sketch of the Vickers landing carriage.

to a 4 mm. bolt. The wing truss, which is formed of two strips of high tension steel wrapped together by tape, is butted into a conical ferrule, which is attached to the steel lugs of the boom clip in the manner illustrated. The tail surface is purely directional and supports no weight, thus the longitudinal stability of the machine is rendered more automatic and the pilot, by being placed further forward, has a better view of his surroundings than he otherwise would have.

Two approximately semi-circular planes rock on ball-bearings at the rear edge of the horizontal tail, and serve as elevators. The



SCIENTIFIC RESEARCH

AN editorial in the current issue of our contemporary, the *Contract Journal*, presented under the title of "The Scientific Fetish," aims at throwing cold water on the suggestion that is frequently put forward to the effect that the science of flight naturally suffers somewhat from an apparent absence of sound theory and laboratory research.

We do not think our contemporary means quite what it seems to say, the effect of which is to give the impression that theory is comparatively of no account in the matter. It is perfectly true, as is, of course, obvious to everyone, that the real work in this as in other pioneer fields of development is now being done by the practical man who takes his life in his hands and flies up to see what the air is made of. All honour to such as these, we say; but greater honour still if, when they come to earth again safe and sound, they use their minds awhile to reason out as far as may be the why and wherefore of the difficulties they have been contending with, and will listen also to others who are trying to see daylight through the same problem from a different point of view. When a man is flying, his first and last thought is to keep his machine in equilibrium. Those of great experience, flying on occasions of exceptional simplicity, may have some leisure to think of other things; but the seat of an aeroplane is not necessarily the best sort of professor's chair, nor one that is altogether conducive to the ease of mind that is necessary to logical and prolonged thought.



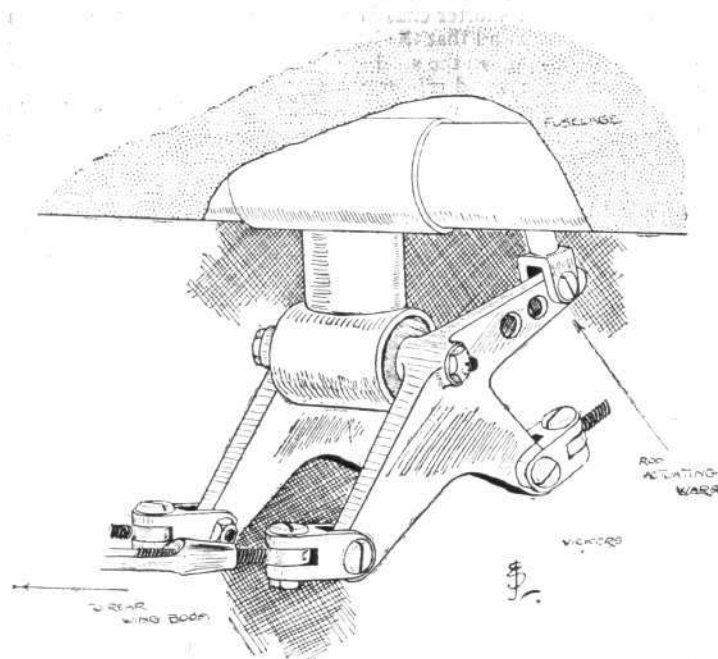
Bristol Biplanes at Russian Manoeuvres.

AN incident of very vast importance to those who have the interests of the British aviation industry at heart took place on the 15th inst. In connection with the Russian Army manoeuvres two officers left Gatchina and made a reconnoitring flight round Krasnoe Selo, their mount being one of the nine Bristol biplanes ordered by

rudder, too, is swung on ball-bearings, and the whole of the tail is protected from contact with the ground by a small wooden skid.

Elevation and depression is effected by a backward and forward motion of a lever situated between the pilot's knees, and balance is maintained by rocking it laterally.

The lateral motion of the lever is transmitted to the warping-crank



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The Vickers Monoplane.—Double-bell crank operating foot-lever.

under the body framework by means of a crank and tubular steel connecting-rod. The rudder control is by the customary pivoted foot-lever.

The motor is a 5-cyl. 60-h.p. R.E.P. of the latest type, and a direct coupled Régy Frères tractor-screw transforms the rotary motion of the crank-shaft into effective thrust. Petrol is carried in a large tank under the passenger's seat, whence it is fed by pressure to a smaller tank placed above and behind the engine; the final feed to the carburettor is thus by gravity.



AND PRACTICAL WORK.

It is, of course, neither from one side nor from the other side alone that the good work must come; everyone who is interested in the subject is capable of contributing something towards progress, and he who neglects to do so, or neglects to give consideration to the contributions of others, is only standing in the light of the development that he pretends to assist. There is, however, one aspect of the "scientific fetish," as seen by our contemporary, that we would like to emphasise. Speaking of Hopkinson, one of the greatest of electrical engineers, the article says, "some of those who did the real work, of whom perhaps the greatest was Hopkinson, were as good mathematicians as any of them, but these made mathematics their servant, not their master. There was very little mathematics in Hopkinson's great paper that gave us the characteristic curve of the dynamo, and profoundly modified and improved all subsequent dynamo design."

There you have the true and proper relationship in a nutshell—theory appreciated by the practical man, stripped of its encumbrances, and presented to the profession in the clear light of simplicity. It is the theory that is difficult to understand that the practical man jibs at, and until the pure scientist re-descends from the far removed mental plane of his abstract work in order that he may propagate his learning with child-like directness, there will always be that unfortunate discord between the two branches of science that should ever go hand in hand.



the Russian Government. They returned after a flight of sixty miles in an hour and a quarter, and in spite of heavy showers and gusty winds had a valuable detailed report to present to their superior officer. Meanwhile other military aviators had flown over Gatchina keeping their comrades in sight. Similar flights were made on the following day.

A Study of Bird Flight

By Dr E.H.Hankin. M.A. DSc.
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CHAPTER VI.—Ease-Gliding and Lift-Gliding.

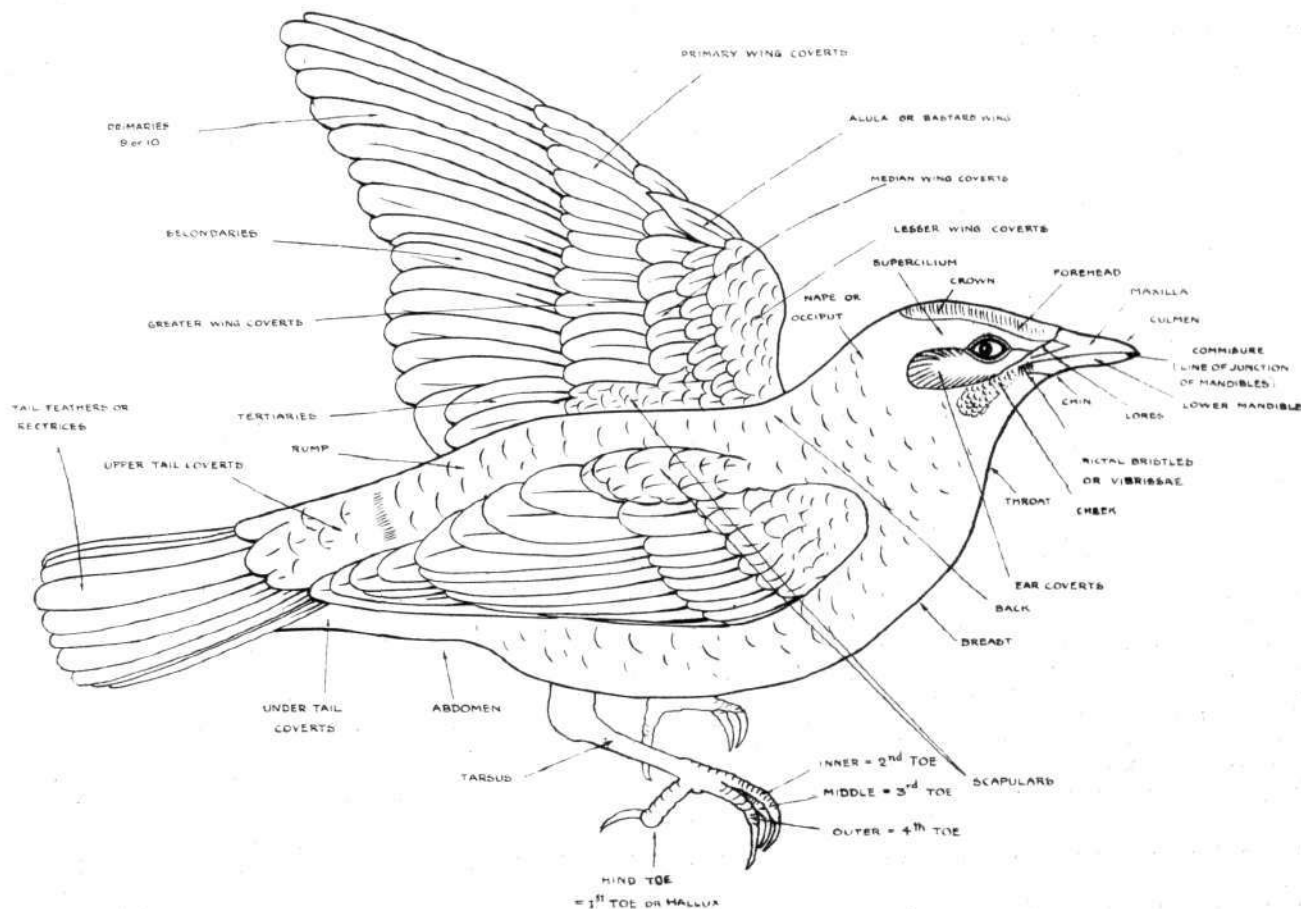
ON any fine day, after soarability has been established, a large number of birds of different species may be seen circling and gliding over the Jharna Nullah factory. At intervals a cluster of birds becomes separate from the rest and commences to drift, circling more or less directly to leeward. Sometimes as many as half a dozen clusters each containing one or two hundred birds may be seen at one time. Sometimes I have been able to observe that the starting of a cluster of birds to leeward was coincident with the coming of a puff of wind. After the cluster has drifted one to three miles to leeward it breaks up and the birds that had formed it may be seen flex-gliding either directly up-wind to join the original group of birds over the slaughter-house, or else they flex-glide in different directions to join other groups of circling birds. In a light wind the birds may be seen to be flex-gliding at low speed with wings only slightly flexed. If the wind freshens all the birds in sight may be seen suddenly to increase the flexing of their wings,

that is to say, there is no dihedrally-up angle and the wings are not advanced.

In rare cases cheels and vultures may be seen gliding up-wind in a more or less straight line with gain of height. For this form of flight I propose the term "lift-gliding." In lift-gliding the wings are held in the same position as in circling. In lift-gliding the bird always shows instability round the dorso-ventral axis. By this term I mean the axis that is vertical if the bird is gliding horizontally. In this kind of instability the bird shows a tendency to rotate for short distances to and fro round the axis in question.

The distance through which a bird may lift-glide varies from a few metres up to one or two hundred metres. At the end of a lift-glide the bird may either begin circling, or, flexing its wings, may flex-glide up-wind at increased speed. In either case its previous instability at once vanishes. I shall have occasion to describe lift-gliding more minutely after bringing forward evidence bearing on the question of the nature of soarability.

In the presence of a strong wind, currents of air are deflected



The above diagram is from "Fauna of British India Birds," by Oates and Blanford, as copied in the Journal of the Bombay Natural History Society, Vol. XVII, p. 850. As an index drawing, showing the positions of the principal parts of a bird, it should be of general interest and of particular assistance to those reading this article.

that is to say to make the adjustment necessary for flex-gliding at higher speed. Fig. 10 is a looking-glass record of the track of a cheel first circling and drifting with the wind, and then flex-gliding up-wind at slow speed.

Some time after mooring soarability for cheels has been established these birds may often be seen gliding in irregular curves without gain or loss of height and at moderate speed. I propose the term "ease-gliding" for this form of flight. Scavengers also indulge frequently in ease-gliding. The heavier vultures show this form of flight less often. Fig. 11 shows the track of a cheel while ease-gliding. Ease-gliding of a vulture is shown in Fig. 12.

In the case of vultures when ease-gliding, the wings are held flat and the front margins of the two wings are in one straight line,

upwards from the walls of high buildings. If the air is soarable cheels appear to avoid, rather than otherwise, such ascending currents. But, in the morning, before soarability has been established, and late in the afternoon, when soarability near the earth decreases, cheels collect on the windward side of such buildings and by taking advantage of the ascending currents remain ease-gliding in the air. I propose to describe this phenomenon in detail on a later occasion.

CHAPTER VII.—Canted Flex-Gliding.

I have now to describe a very remarkable phenomenon which at once shows that the problem of the nature of soarability must be solved by serious research and not by idle theorising.

As a rule a bird when flex-gliding travels on a level keel. But, during the cold weather of 1909-1910, I noticed that the heavier birds when flex-gliding in a direction at right angles to the wind appeared to be canted over away from the wind, as shown in Fig. 13, although their course appeared to be a perfectly straight line. At first I thought that the appearance was illusory. It was conceivable that in order to allow for drift the bird might not head in the direction towards which it wanted to go but towards some point to windward of this direction. But at last I noticed that such "heading" only occurs when the wind was strong, whereas canted flex-gliding was only observed when the wind was light. During January, 1910, it often happened that two or three vultures at a time could be observed flex-gliding beam on to the wind in a canted position. The following extracts from my diary illustrate my observations on canted flex-gliding:—

March 4th, 1910.—At 1.30.—A large group of vultures came towards me flex-gliding up-wind. The wind was west and very light, slightly moving leaves. When near me the vultures turned

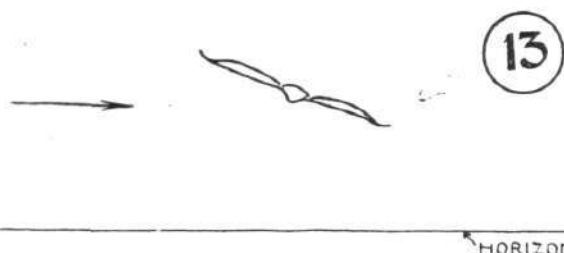


Fig. 13.—End-on view of a vulture flex-gliding in a straight line, but in a canted position, and travelling in a direction at right angles to the direction of the wind.

to the north. In doing so they became canted over away from the wind and remained thus canted over while gliding away in a straight line till out of sight. They were at different heights. One or two were quite low down, perhaps from 100 to 150 metres up.

March 16th, 1910.—At 4.16.—Some thin cloud but no cloud shadows. Blue sky overhead. Wind light and moving leaves. Several vultures showed canting.

March 27th, 1910.—At 5.20.—A vulture seen to the north, probably about a mile distant and 500 metres up. It was flex-gliding beam on to the wind, which was west. It was canted. It passed overhead showing absence of heading. When it had passed over me towards the south, it was still seen to be canted. After proceeding south for about a mile and a half, it got on to an even keel for a few seconds, then turned to the east and began circling. The wind was light, only slightly moving leaves. Factory chimney smoke was rising high.

The first entry in my diary relating to canted flex-gliding is dated November 19th, 1909. It was only in March, 1910, that I convinced myself of the reality of the appearance. The extraordinary part of the matter is that whereas during the cold weather of 1909-1910 canted flex-gliding must have been of common occurrence, from March, 1910, it has only occurred on very rare occasions. After March 27th I did not see canted flex-gliding again for four months. The observations were as follows:—

July 28th, 1910.—At 4.0.—Clouded over. Wind north, puffy, and moving branches. Circling vultures showed rapid drift to leeward. A group of five was noticed, after circling, to flex-glide off with the wind on their beam. All showed canting. A few minutes later two other vultures were seen flex-gliding in a canted position.

August 2nd, 1910.—At 4.20 to 4.30.—Two vultures seen flex-gliding to leeward and 8 vultures canted flex-gliding beam on to wind. The wind was then puffy, moving smaller branches during puffs.

August 14th, 1910.—At Futteypur-Sikri. 4.1.—Lull in wind. previously it had been moving branches and now only leaves. Low level flapping noticed (a sign of afternoon decrease of soarability near the earth). Strong sunshine.

4.10.—Four vultures seen canted flex-gliding to N.W. They were at about 800 metres height. Wind S.W. and puffy.

August 20th, 1910.—At 5.0.—Three vultures seen canted beam on flex-gliding. After about 45 seconds they got level and turned gliding to north.

The above observations in July and August had been made during the monsoon season. Canted flex-gliding was not again observed till cold weather conditions had been established. These observations were as follows:—

October 18th, 1910.—At 4.30.—A large number of vultures and one adjutant circling. Much canted flex-gliding was seen. At one moment I counted 41 vultures in canted flex-gliding. They

were all canted over to the same amount. One that was fast flex-gliding was canted to the same degree as the others. The wind was west and very light, leaves being generally still.

October 21st, 1910.—At 5.0.—Group of cranes seen at about 300 metres height canted flex-gliding with occasional flapping.

Since this latter date to time of writing (February 20th, 1911), I have only seen one more case of undoubted flex-gliding in the canted position as follows:—

January 16th, 1911.—At 3.15.—A vulture seen canted flex-gliding to north. (The wind was west.)

3.17.—A vulture coming up towards me beam on to the wind was canted. It was 400 metres up and travelling at 18 metres per second. When overhead it was seen to be going straight (that is to say absence of "heading"). When it had passed over it was again seen to be canted. Near it was a scavenger vulture also canted.

3.25.—A vulture canted flex-gliding for a short distance.

3.33.—A vulture and a brown vulture going to the north canted.

3.34.—A scavenger seen fast canted flex gliding to north.

3.36.—A vulture at 300 metres height canted flex-gliding. Vultures circling at the time had wings only very slightly advanced. (Observations began at 3.15 and now discontinued.)

Almost every day during the present cold weather I have seen vultures flex-gliding in a direction at right angles to the wind but on a level keel. Despite careful observation canted beam-on flex-gliding has not been observed except in the cases above mentioned.

Cheels when flex-gliding in an ascending current of air over the battlements of the Agra fort always keep on a level keel. Hence it is difficult to see how any speculations about ascending currents of air can help us to understand the nature of canted flex-gliding.

I am acquainted with various dispositions of wings or modes of flight that occur at one time of the day and not at another, or at one season of the year and not at others. With our present knowledge it is not impossible to suggest explanations of such changes. But a mode of flight that occurs commonly in one year and rarely in another indicates the concurrence of meteorological factors whose nature is at present completely unknown.

CHAPTER VIII.—Preliminary Description of Steering Movements in Gliding Flight.

On rare occasions I have seen a species of crane circling in company with the more common soaring birds. This crane, when soaring, carries its head and neck outstretched in front and its legs stretched out behind, so that the distance from head to foot is nearly as great as the total span of its wings. With vultures, on the other hand, neither the head or tail form conspicuous objects during soaring flight. Vultures soar with their long necks coiled in such a way that the head scarcely projects beyond the line of the front of the wings. The tail is small in proportion to the area of the wings. In a vulture that I measured having a span of 82 inches the tail was 8 inches long and 4 inches wide when furled.

In cranes, adjutants, and similar birds in which the head extends for a distance beyond the line of the front edge of the wings, the head is kept perfectly still, except occasionally during descent. There is no reason for suspecting that movements of the head and neck are used for steering. By steering I intend to refer to movements to right and left in the horizontal plane.

In the case of vultures and cheels movements of the head frequently occur. But careful examination shows that these movements have nothing to do with steering. A cheel may turn its head to one side and still remain travelling in a straight line. Or a cheel having some food in its claws may lower its head, and bringing forward its feet, may tear and eat the food without interruption of its gliding flight. When vultures are starting their circling flight it is interesting to notice how little they appear to attend to what they are doing. Turning their heads to one side or the other as they watch other birds or look at the ground below them, seems to have no effect on the regularity of their course.

I purpose describing my observations relating to the functions of the tail in a later chapter, and shall then show that adjustments of this organ are not used to produce steering movements in the horizontal plane.

A statement has recently appeared in a popular paper to the effect that birds can steer by lowering one foot or the other. This opinion does not appear to be based on any serious observation. As I shall afterwards show, vultures do lower their feet when preparing to descend in certain cases. Sometimes one foot may be lowered a short time before the other. Vultures can, and usually do, steer from side to side without lowering their feet, and if they do lower one foot any steering effect produced is certainly infinitesimal. Hanging down the feet may act as a brake, but, as I shall explain later, this is not the most important method of checking speed that is used in descent.

I first obtained a clue to the nature of steering movements by observing the flight of the black vulture, in which bird the movements are commonly of larger extent than in other species. By practice, my powers of observation have increased, so that I am able to observe steering movements in other species of birds. For obvious reasons the larger birds are the most suitable for making these rather difficult observations. But I have on one occasion been able to see the movement that I am about to describe as the "depression" in the wing of the green parrot, a very fast flying bird of comparatively small size.

If a black vulture is watched when ease-gliding, occasionally the tip of one wing will be seen to be depressed downwards momentarily and then raised at once to its original position. The range of movement may be three or four inches. This dipping downwards of the wing-tip occurs at about the same speed as one might turn over and turn back the page of a book. After this movement has been completed the bird begins to turn in its course towards the side of the wing tip that was depressed. After the movement there is almost time to formulate in words which way the bird is going to turn before the commencement of the turn can be recognised. That is to say, there is the appearance of a latent period between the movement and the resulting steering action. In my notes I originally described this movement as a dipping downwards of the wing tip. This phrase was soon abbreviated to "dip," by which term I propose to refer to the movement in future.

It is necessary to consider how the "dip" is brought about. The first possibility that suggested itself to me was that it was caused by some of the intrinsic muscles of the wing. But on examining the wing of a dead bird, it appeared to me that the range of possible movement at the carpal joint was less than my observations had led

me to expect. It then occurred to me that perhaps what really happened was that the whole of the wing was rotated until the air pressed on its upper surface instead of on its under surface. It is conceivable that should this be the case the quill feathers would thereby be depressed and so cause the appearance of the dip, especially as it is likely that the less supported quill feathers of the wing-tip would thereby be most affected.

In order to decide between these two possibilities, I dissected the wing of a black vulture, and found that neither of the above suggested explanations is an adequate statement of the facts of the case.

None of the intrinsic muscles of the wing have any power of making a dip movement by direct action. But, on the under side of the ulna, I found three muscles that have the power of rotating the front edge of the outer part of the wing. Supposing the wing is extended horizontally, then, if these three muscles come into action, the front edge of the wing tip becomes depressed. That is to say, the wing tip is rotated round the axis of the wing. The rotation is in such a direction that the air ceases to press on the under side of the wing tip feathers. Instead, it presses or tends to press on their upper surfaces. Hence the tips of these feathers are bent downwards, producing the appearance of the dip movement. From the dorsal aspect of the wing two muscles may be seen that have the power of rotating the front edge of the wing tip in the opposite direction. These muscles come into action at the end of a dip movement, to return the wing tip to its original position.

I have also found these muscles in the wings of the common vulture, the Adjutant (*Leptoptilus dubius*) and the Sarus (*Grus antigone*).

(To be continued.)

Newspapers by Aeroplane.

AN enterprising newspaper made arrangements with Gustav Hamel to carry several bundles of newspapers from the Hendon

Aerodrome to Southend on Saturday last. The newspapers were rolled up and packed on the Blériot machine, and the aviator started off, but he had only got as far as Hammersmith when the heavy thunderstorm broke over London and caused him to come down.



CARRYING NEWSPAPERS BY AEROPLANE.—Mr. Gustav Hamel "autographing" some of the copies of the *Evening Times* at Hendon on Saturday last just prior to his attempt to carry them by aeroplane to Southend. As recorded elsewhere, Mr. Hamel gave up the flight soon after the start. At the left of the picture, in the cap, is M. Petit Pierre, the victim of the lunatic Hanot who so wildly shot at the spectators and others on Saturday evening at the Hendon Aerodrome. This picture was taken only a very short period before the crime was committed.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Thursday, August 17th, 1911, when there were present:—Prof. A. K. Huntington, in the Chair, Mr. Griffith Brewer, Mr. F. K. McClean, Mr. C. F. Pollock, and Harold E. Perrin, Secretary.

New Members.—The following new Members were elected:—Lieut. Ernest Vincent Anderson, George Miller Dyott, Capt. Patrick Hamilton, Theodore John Ridge, Gerald Seligman.

Aviators' Certificates.—The following aviators' certificates were granted:—

- 114. G. M. Dyott.
- 115. Lieut.-Col. C. O. Smeaton.
- 116. Louis Noel (subject Aero Club de France).
- 117. Lieut. S. D. A. Grey, R.N.
- 118. Brig.-General D. Henderson, C.B., D.S.O.
- 119. Theodore John Ridge.

"Daily Mail" Second £10,000 Prize.—Official Awards:—

Prize.	Winner.	
Daily Mail Second £10,000 Prize	A. Beaumont	£10,000
Sir George White Bart., Chairman of the British and Colonial Aeroplane Co., Bristol, £250	J. Vedrines	83 6 8
	J. Valentine	83 6 8
	S. F. Cody	83 6 8
British Petroleum Co., Ltd., Proprietors of Shell Motor Spirit, £131 5s.	J. Vedrines	43 15 0
	J. Valentine	43 15 0
	S. F. Cody	43 15 0
The Proprietors of Perrier Table Water 100 Guineas <i>Entente Cordiale</i> Prize	A. Beaumont	52 10 0
	J. Valentine	52 10 0
Excelsa Handkerchief Company, £100	A. Beaumont	
Brighton Hotels Association One Hundred Guinea Gold Cup	J. Valentine	
Harrogate Chamber of Trades £50 Tea Service	J. Valentine	
Hon. C. A. Parsons, Major J. F. Laycock and Northumberland and Durham Aero Club, £40	S. F. Cody	
J. R. Ogden, Harrogate, Silver Cup	J. Vedrines	
Stirling Town Council and Magistrates, Stirling Souvenir	A. Beaumont	

Proposed Shoreham-Dieppe Race.—The application from the Brighton-Shoreham Aerodrome, Limited, for permission to hold an aviation race between Shoreham and Dieppe and return was considered. The Committee decided that they could not sanction the competition, as they considered a flight of nearly 80 miles over the sea entailed unnecessary danger.

Aviators' Certificates.—The Committee are now considering the advisability of raising the standard of efficiency to be attained by candidates for Aviators' Certificates, and will be glad to receive any suggestions on the subject. The Royal Aero Club will raise

the question at the next meeting of the Federation Aeronautique Internationale, which takes place at Rome in October next.

Late Hon. C. S. Rolls and Cecil Grace.

Several residents at Eastchurch have expressed the wish to place a stained glass window in the Church at Eastchurch, in memory of the late Hon. C. S. Rolls and Cecil Grace, both of whom made their first experiments in flying in the district.

The fund collected amounts to £22 towards an estimated cost of £60. Members wishing to contribute are requested to communicate with the Secretary of the Royal Aero Club.

Mr. A. Mortimer Singer has kindly presented to the Club a Bronze Statuette of the late Hon. C. S. Rolls.

Army and Navy Aviation Prizes.

The following flights have been recorded in connection with the above prizes:—

Army	Lieut. R. A. Cammell, R.E.	100 miles
Navy	Lieut. E. L. Gerrard, R.M.L.I.	129 miles

Long Distance Balloon Competition.

Mr. A. Mortimer Singer has kindly presented a cup for a Long Distance Balloon Competition to be competed for between September 1st and December 31st, 1911. The rules can be obtained from the Royal Aero Club.

Mr. A. Mortimer Singer has presented a further cup, value £25, to be competed for by members of the Royal Aero Club. The cup will be awarded to the member who makes the largest number of balloon ascents between September 1st and December 31st, 1911. Members can be either in charge of the balloon or passengers. Military ascents will not be eligible.

British Empire Michelin Cup (No 1).

Intending competitors are reminded that the competition for this year closes on October 31st. The rules can be obtained from the Royal Aero Club.

British Empire Michelin Cup (No 2).

Intending competitors are reminded that the competition for this year closes on October 15th. The rules can be obtained from the Royal Aero Club.

Library.

Sir Isaac Pitman and Sons, Ltd., have kindly presented to the Library a copy of "The New Art of Flying," by Waldemar Kaempfert.

Messrs. H. Dunod and E. Pinat have kindly presented a copy of the "Etude de la Stabilité de l'Aéroplane," by Georges de Bothezat.

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

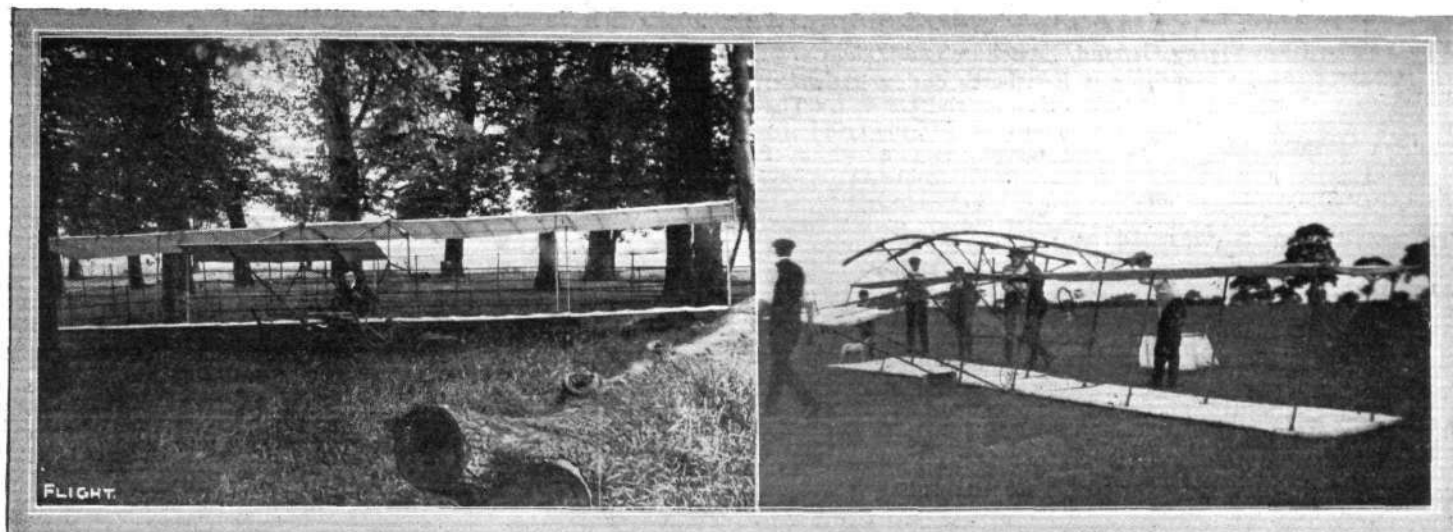
Birmingham Aero Club (62, ALBION STREET).

THERE has been plenty of excitement lately at the club's ground with the full-sized glider. On one occasion on Saturday week it was taken up to a height of 10 ft., and came down upside-down, after having passed over the heads of the members. This was done of its own accord while preparations were being made for a towed flight. The day before some members tried the glider, and had got it up 20 ft. with very little exertion and only three on the tow-ropes; there was a slight breeze at the time, but in coming down the rudder was damaged a little. It should be repaired and out again in about a week's time. There was plenty to interest the spectators, as apart from the glider a number of models were being tried.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

THE second annual competition for the Association's Silver Challenge Cup was held on Saturday, 19th inst., in the field at Greenford Bridge. Although the railway strike held up some of the would-be competitors, 16 weighed in at 3 o'clock, but the

competition had to be postponed for a time after the first trial on account of a severe thunderstorm. Mr. F. Pringuer and Mr. W. H. Akehurst judged. The results were—1st prize, K.M.A.A. Silver Challenge Cup and gold medal, G. Rowlands, 160 marks; 2nd, silver medal, R. F. Mann, 150 marks; 3rd, bronze medal, G. P. Bragg Smith, 146 marks. The winner, Mr. Rowlands, made a fine and steady flight of 1,093 ft. 7 ins., with his now well-known twin-screw monoplane. Mr. Mann's flight was the longest, being 1,384 ft., but was not nearly so stable as the winner's or Mr. Smith's, and as the competition was for the longest flight and stability, Mr. Rowlands won with the marks for stability. One of the best flights was made by Mr. G. P. Bragg Smith, whose machine rose off the grass and covered a distance of 945 ft., showing splendid stability. Owing to the ground surface having got so soft, the judges decided that in fairness to competitors all models should be launched by hand, but Mr. Smith preferred to try his off the grass. After tea, which had been prepared by the ladies, Mrs. Twining presented the prizes to the successful competitors. The amateur



The Birmingham Aero Club's full-size glider with which some good sport was had last week-end. The glider, which had been taken up to a 10-ft. rise, later started away on its own accord, and landed upside down as seen in the right-hand photograph.

competition was postponed on account of the rain. The amended date and place will be published as soon as possible. It is also proposed to hold a competition for those who have not won a prize during the summer, as well as an open junior kite competition and a model competition open to all schools. The prizes will be given by the Aerial League of the British Empire, and the rules, &c., will be published shortly.

Leeds Model Aeroplane Club (5A, HULLAND ST., HUNSLET RD.).

THE first meet of the above club will be held at 3 o'clock to-day (Saturday) at the Low Fields, Elland Road (near City football ground). H. F. Braithwaite and Co., of 15, Borough Terrace, Hunslet, will present a pair of carved, polished propellers of suitable size for the best flight of the day. A room has been

rented in the Never Sleep Chambers, corner of Claypit Lane, top of Cookridge Street, and work has begun in real earnest.

Parkside Aero Club (2, EDBROOKE ROAD, PADDINGTON).

THE club competition for members only will be held on Saturday, September 2nd, at Parkside. Members entering should notify secretary at once. 1st prize, silver challenge cup; 2nd, medal; 3rd, accessories and materials.

The rising under own power and duration competition takes place on Saturday, September 9th, at 2.30 p.m., at Parkside, Sudbury. Entrance fee 2s. 1st prize, cup; 2nd, medal; 3rd, medal.

Scottish Ae.S. Model Aero Club.

A COMPETITION under the auspices of the above club was held in Alexandra Park, Glasgow, on Saturday, the 19th inst., before a large and very appreciative audience. The distance flight was won by Mr. D. Munro, of Greenock, with 308 ft. 3 ins., and Mr. J. S. Gordon was second with 303 ft. The duration event was won by Mr. J. S. Gordon with 40 secs., Mr. W. C. Boyd being second with 33 secs. The official figures given are by no means representative of the models' capabilities, as many of them circled repeatedly before coming to earth in the distance event. This was caused no doubt by the very bad nature of the ground. One of the models made some very thrilling flights over the pond where the yacht racing was in progress. All the machines used were of the twin-screw monoplane type.

SCHOOL AERO CLUB.

Todmorden Secondary School Ae.C. (32, BYROM STREET).

A MODEL aero club was formed early this month, and the membership is to embrace both present and past students of the school. No flying meetings have as yet been held, but it is hoped to hold one on Saturday, Sept. 16th, 1911, when the members have had time to make their models. The secretary, Mr. Stuart Gill, will be pleased to receive catalogues, &c., from model firms at the above address.



The Fatal Accident at Aldershot.

THE sympathies of all interested in British aviation will be with the little band of experimenters at the Army Balloon Factory at Farnborough in the loss sustained by the fatal accident on the 18th inst. to Lieut. Theodore Ridge. His experience in the air had mostly been with dirigibles constructed at the factory of which he was the assistant superintendent, but a short time ago he qualified for his *brevet* on a biplane. The evidence given at the inquest on Monday last, when a verdict of "Death by misadventure" was returned, rather showed that the accident was another case of the danger of the over-confidence of inexperience. After seeing several flights successfully made by a mechanic, he decided to try the machine himself, although he was warned by the designer, as well as the engineer at the factory, not to do so. He however insisted on going, as he felt confident he could manage it. He went for a short flight, and on returning stopped the engine to come down, and then started to make a sharp turn, which he had been especially warned not to do. The machine by this manoeuvre lost its balance and fell to the ground, the pilot being pinned under the *débris*, and so severely injured that he died the same night in the Connaught Hospital.



Kite and Model Aeroplane Association Competition at Greenford Bridge.—Master C. Ridley, the boy model-maker, who won the Gamage Silver Challenge Cup and Gold Medal for the longest flight at this competition. His monoplane flew 1,681 feet in a single flight.

FROM THE BRITISH FLYING GROUNDS.

Royal Aero Club Flying Ground, Eastchurch.

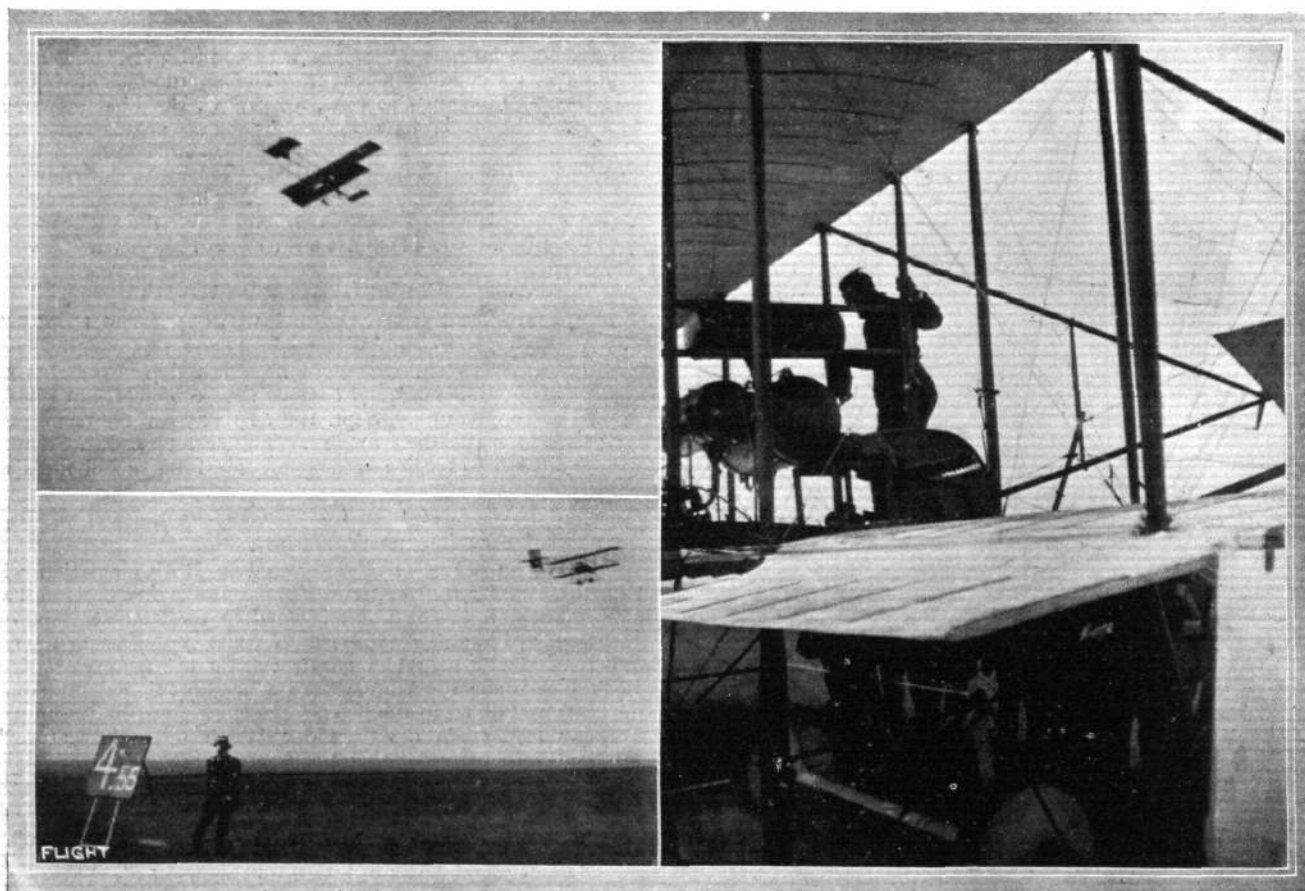
THERE was some good flying at Eastchurch during last week, including two record flights by Lieuts. Samson and Gerrard. The first record fell to Lieut. Gerrard, who, on Thursday, the 17th inst., made a world's passenger carrying record with a flight of 4 hrs. 13 mins. The passenger was Lieut. Wildman-Lushington, R.M.A., and the machine used was the Short biplane No. 34, one of the machines loaned by Mr. McClean for the use of the Navy. The course made was between H.M.S. "Actaeon" lying off Sheerness, and the Leysdown Coastguard Station, points which are 10 miles apart. The official observers were Lieut. A. W. McDonald and Mr. A. Hook on board the "Actaeon" and the Hon. Maurice Egerton and Lieut. Gregory at the Leysdown Station. Lieut. Gerrard and his passenger got away promptly at 3.30 p.m. carrying on board 28 galls. of petrol and 13 galls. of oil. Rising rapidly into the air Lieut. Gerrard continued to climb until he had attained a height of 1,000 ft., at which altitude he considered he had sufficient fall to enable him to pick a good landing place in case of an enforced descent. For practically 4½ hours the two aviators continued up aloft, Lieut. Gerrard handling the machine with that mastery which he has shown from his first lesson at Eastchurch, keeping the machine at a good angle and never allowing it to fluctuate from the altitude he had determined upon. At a quarter to eight he had still a good supply of petrol left, but as it was rapidly growing dusk, another lap of the twenty miles course was out of the question. Lieut. Gerrard therefore decided to descend, which he did with a neat *vol plané*, being greeted on landing with a ringing cheer from the bystanders, which was well deserved, considering that he had nearly doubled the time of the previous British record.

Friday was altogether a bad day for aviation owing to extremely unsteady air currents, which came up in strong puffy gusts from the south-west. At a quarter to three Lieut. Samson started up, but finding things too "bumpy" to be pleasant he returned to earth after a few laps of the aerodrome. An hour or so later Mr. Alec Ogilvie was out on his medium sized Wright machine. The weather conditions had, however, not improved, and he also was content with a few laps round the aerodrome, after which he landed very neatly at the door of his shed. No further flying was attempted that day.

On Saturday morning Lieuts. Samson, Gerrard, Longmore and Gregory were out early putting in their usual practice flights. At 4.50 a.m. Lieut. Samson, carrying one passenger, on the Short No. 38, made a long tour of the island, returning at 6 a.m., having been up one hour and ten minutes. He was so pleased with the way the machine was flying that he expressed his intention of trying, without a passenger, for the British duration record, and he started away again immediately, getting into the air at 6.7 a.m. For the next hour the weather conditions were fairly good, but at 7.30 a change for the worse set in, the sky becoming overcast with stormy clouds, and a strong ground wind springing up. The indefatigable Samson had no intention, however, of coming down, and continued to fly with almost monotonous regularity to and fro above the aerodrome. By 10 a.m. the air conditions had become still worse, and the sun breaking through the clouds in patches appeared to cause upward and downward trends in which the aeroplane rose and fell vertically, but, by the skill of the aviator, was kept constantly on an even keel. Shortly after 10 o'clock the observers on the ground heard a voice coming from the aeroplane each time it passed overhead, but owing to the roar of the engine they could not make out what the aviator was shouting. Someone suggested that he was merely singing as he worked away at the elevator, but at last, by the aid of an ear trumpet, the words were caught. It appears that the aviator's watch had stopped, and he wanted to know the time. A blackboard was at once secured from the lecture room, and on this the time was chalked every five minutes, so that the aviator was kept well informed of his progress. Shortly after 11.15 a.m. Lieut. Samson descended, having been in the air 4 hrs. 58½ mins., thus creating a new British duration record with a fine flight under difficult conditions. Lieut. Samson was not at all tired, although he had been flying almost continuously for over six hours. He had also plenty of petrol and oil left, but the treacherous air currents made a continuance of the flight inadvisable.

Brighton-Shoreham Aerodrome.

MESSRS. COLLYER AND Co.'s partly constructed tractor biplane arrived here on Tuesday night, the 11th inst., and is fast nearing completion. Trials will be carried out in the course of the next few



Lieut. Samson, R.N., making his British duration record of nearly five hours on a Short biplane at Eastchurch Aerodrome last Saturday. At the top he is seen making a good turn; below, Mr. Travers is seen chalking on a board the time Lieut. Samson had been in the air, this being rendered necessary by reason of the aviator's watch having stopped, a fact which he communicated to the observers by shouting from his aeroplane. On the right Lieut. Samson is seen in the act of dismounting after his splendid flight.

days. We missed seeing Mr. O. C. Morison, who intended calling here on his way to Ventnor from Folkestone, engine trouble forcing him to "land" in the sea soon after leaving the latter place. Messrs. Metzgar Bros. and Leno are carrying out some minor alterations in the chassis suspension of their machine, and when these are complete will continue their trials.

Mr. Valentine arrived from Ventnor on Monday morning on his Deperdussin monoplane, and completely beat the telegraph, a message saying he had left the Isle of Wight not arriving at Brighton until after he had passed along the front and returned to the aerodrome.

A feeling of disappointment has been caused by the action of the Royal Aero Club in not sanctioning the proposed races between here and Dieppe, and it is impossible to say yet what will be done. It may be possible for the races to take place *via* Calais.

Brooklands Aerodrome.

THE early part of last week was not at all favourable for flying except in the early morning. Later on in the day the wind rose fairly high and only dropped to a reasonable breeze late in the evening. However, a little practice was snatched between gusts. Pixton, as usual, was out flying his Bristol, teaching pupils, and taking various passengers. Valentine got off in good style on Tuesday morning despite a gusty breeze. The way he handles his Deperdussin is really good, and he says it's a very easy machine to control. Gordon Bell, who has recently been appointed to take charge of the school, is making good progress. He started waltzing, then made a very undulatory flight at about 4 or 5 feet high, and the following morning took the machine up to 60 feet and landed well. This is a very good performance considering the fact that this was on a Gnome-Deperdussin fitted with an Anzani engine, and not intended to fly. We understand that a special Anzani machine is due shortly, and judging by the above should prove a fine flyer. One of the pupils—a cadet from Osborne, aged about 16 years—had his first rolling practice on Monday evening. He got the machine off the ground presumably by mistake, but managed to land safely, although he had a big bank on. He is getting along very well, and seems quite at home on the machine. Spencer was out on the Spencer-Farman, flying very well and at a good height; he can get his ticket when he likes now. On Thursday, Pixton thought he would try the last of the *Daily Mail* Bristols, the one Gordon-England was to have flown. He got up in good style, and went off to make a turn over the sewage farm. As soon as he started the turn the machine dropped like lead, but Pixton, struggling on, thought he would just clear the farm. The engine thought otherwise, however, and dropped him on some luckily dry ground. He did not hurt himself, and hardly damaged the machine, although it stood on its nose owing to the wheels sinking into the ground. He says that this type of machine would be very nice to fly with a little more horse-power. The Avro-Farman was out piloted by Raynham; he must be a very good man to be able to get the results he does from such an ancient machine. Noel was flying on Wednesday evening, and on landing, mistaking his distance from the ground, he landed on the skid tips, but did not do any more damage than breaking one of the chassis spars. He is fast becoming a good pilot, and has a great deal of nerve. On Friday morning Mrs. Hewlett succeeded in getting her ticket. She has very good judgment, and is, we should say, the best lady pilot of the day. Just afterwards, on the same machine, Longstaffe had an exciting time when one of the cylinders blew off the engine; fortunately he was able to *vol plané* down; his first attempt at landing so! Friday evening saw the first appearance of the Martin-Handasyde monoplane since it got caught in a "remou." It was making good straight flights, and seems to be going much better now it is fitted with a new propeller. Spencer got his ticket on Saturday morning, flying at a very good height, and landing faultlessly. Raynham was also out teaching a pupil. In the afternoon both Pixton and Raynham were very busy with passengers. There was quite a fair crowd down, despite the strike. In the near future, railwaymen can strike as often as they like so long as we are able to get about on our aeroplanes. Luckily, we should be out of range of half-bricks and stones.

On Monday the Hanriot turned out after its long rest. Petre, who is now the head of the school, and Manisty were making straight flights in good style, Johnson's E.N.V. is away being rejuvenated. He is giving up the handling of the Howard Wright at the end of this month.

Very funny things happen at Brooklands sometimes. Last Sunday morning a new pupil of the Deperdussin school went forth to "roll" for the first time, after receiving very complete and explicit instructions to go slowly, be very careful and not to attempt to leave the ground, from Gordon Bell, the instructor, who has so fallen in love with his "bus" that it is with feelings of intense anxiety and presentiment that he sends the machine out in charge of a pupil.

Unfortunately, in his lecture Bell forgot to mention the proximity of the sewage farm. In the course of the pupil's wanderings he came across the sewage farm moat, and, ignorant of what lay the other side, "hoicked" the machine off the ground in order to clear it and dropped down gracefully on that noted "fly-paper."

Much to the relief of the perturbed Bell, the Deperdussin suffered no damage.

Liverpool Aviation School, Sandheys Avenue, Waterloo.

NOT much flying has taken place during the past week owing to the effect of the strike preventing the arrival of new wings for the two-seater. Mr. Jones, however, put in a fine series of flights of between one and two miles duration on Sunday last, coming down from 100 ft. or so in pretty *vol planés*. It may be interesting to note that both staff and pupils at the end of last week enlisted as special constables in the city of Liverpool, and Mr. Melly and Mr. Jones could have been seen shovelling coal at the Corporation Power Station, which special duty they were told off to perform. A new pupil—Mr. Hardman—is expected to commence tuition before the end of this week.

Llandudno and North Wales Aerodrome.

NOT much flying was done in the earlier part of last week owing to the weather being unfavourable.

On Wednesday, the 16th inst., M. Favre brought out the Short-Wright, but found the propeller was of too coarse a pitch, and wired for a new one. On Friday Mr. King made a very pretty flight on his Farman in the morning, and a further flight in the afternoon. The visitors, who had previously greatly admired the machine, much appreciated the flights. The new propeller of the Short-Wright not having arrived, the old one was cut down and the machine, with M. Favre as pilot, made some long hops. The propeller, although better, was not satisfactory.

On Saturday Mr. King made several circuits of the aerodrome before an admiring crowd, and afterwards M. Favre endeavoured to jump a wide ditch on the boundary of the aerodrome on the Short-Wright, but the machine failed to rise and was smashed up. The plucky aviator, who it is hoped was not badly hurt, managed to walk back to his hangar.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—On Tuesday, the 15th inst., the wind rather hindered progress, but happily it cleared off sufficiently in



Lieut. Gerrard, R.M.L.I., in the pilot's seat of the Short biplane upon which he made his world's record cross-country duration flight of 4 hrs. 13 mins. with a passenger, Lieut. Wildman Lushington, R.M.A., at Eastchurch flying grounds on August 16th. Lieut. Gerrard was competing for the Mortimer Singer prize, which is open only to British officers.

the evening for Lieuts. Dodgson and Stopford to practise rolling and straight flights from end to end of the ground. Subsequently both Greswell and Hubert made circuits on the school Farman, but they were not lengthy ones as the wind strengthened.

The following day both Lieut. Dahlbeck, of the Swedish Army, and England were flying the school machine, and practising figures of eight at a height of 150 ft. Mrs. Stocks, too, was flying with Driver. Whilst doing straight flights on the Farman, Lieut. Dodgson had the misfortune to come into collision with the school Anzani-Blériot, with disastrous results to both machines. Happily he himself came off with nothing worse than a bad shaking. Grahame-White's exhibition Farman was immediately put in commission to replace the old school "bus," and on this machine Lieut. Dahlbeck started off on an attempt to gain his pilot's credentials. His first series of five figures of eight were very successfully made, but during the second series he had to descend on account of trouble with the motor.

On Thursday, besides the usual amount of instruction that the pupils received, England completed the first half of his tests by flying his eights at an altitude of 250 ft.

Driver came out early the next day on the new Farman, and completed many laps of the ground. On his descent he gave up his place to England, who ascended rapidly to 600 ft., and flew several figures of eight. Later on Driver took up Mrs. Stocks as passenger, piloting her for a cross-country trip. He had, however, to return soon on account of the miss-firing that had developed in his motor. This was remedied during the day, and as soon as the wind had dropped sufficiently Driver brought the machine out for test. As it was growing dark Lieut. Dahlbeck ascended, and completed with success the tests for his certificate.

On Saturday morning England was astir early in the hope of making sure of his *brevet*. After a preliminary flight by Driver he took the machine over, and flew for his ticket at an altitude of 400 ft. He terminated his flight by a fine *vol plané* from that altitude, in spite of the gusty wind of 12 miles an hour that blew at the time.

Up till the time of writing no further flying has taken place. **Valkyrie School.**—Owing to favourable weather, last week was a busy one at the Valkyrie School. On Wednesday evening Miss Trehawke Davies was given a lengthy passenger flight. Meanwhile, Mr. Copland Perry was piloting the new Green-engined school machine. This being his initial essay on the new machine, he contented himself with straight flights only, his landings being quite expert. On Thursday, at 4 p.m., the school pilot made a short test flight on the school machine before handing it over to Mr. Copland Perry, who unexpectedly made five circuits of the aerodrome, rising steadily the while. When on the point of ascending, a monoplane crossed immediately in front of him, causing the onlookers some momentary anxiety, but Mr. Perry proved quite equal to the occasion, rose quickly, and cleared her by 20 ft., but continued to ascend until an altitude of 200 ft. was attained. Mr. Perry seemed quite at home at this height, flying with great

steadiness, and, cutting off his engine over the sheds, made a really fine *vol plané*, alighting in front of the enclosure. Meanwhile, Mr. Barber was busy giving passenger flights to Miss Davies and Mr. Thonemann. Early on Friday the school pilot, with his usual care, made a test flight on the school machine before handing it over to pupils, and then made a trip of 40 mins. duration on the Valkyrie racer, circling over Hendon and the "Welsh Harp" at an altitude of 2,000 ft. Mr. Perry showed marked improvement, making many flights of 15 and 20 mins. duration within the aerodrome. In the evening Mr. Barber gave a fine demonstration on the racer—attaining an altitude of 2,500 ft. With a splendid *vol plané* he descended to within 100 ft. of the earth and then carried out many effective evolutions of a spectacular nature. Particularly interesting was an impromptu race with a Farman biplane. Mr. Barber came up with the latter over the railway embankment and made a complete circuit round the biplane; before the Farman had accomplished more than half a circuit of the aerodrome the Valkyrie was seen passing it again; the difference between the speeds of the two machines was thus strikingly demonstrated. At the same time Mr. Copland Perry made many fine flights at an average height of 200 ft. Later in the evening extended passenger flights were given to Miss Meeze and Mr. Ridley-Prentice. At 3.45 a.m. on Saturday Miss Trehawke Davies was again on the ground anxious for another cross-country trip. Unfortunately the mist was very thick and consequently it was thought advisable to remain within the limits of the aerodrome, the school pilot flying 10 circuits with his passenger, rising some 500 ft. before descending. At 5 a.m. a 10 mile an hour wind sprang up, but this did not deter Mr. Perry from going up, indeed he has proved that he has very complete control of the machine and should be ready to carry out the *brevet* tests within a few days. At 4 p.m. he showed great confidence by opening up the afternoon's exhibition at the aerodrome, flying four-circuits. Soon after, owing to a thunderstorm coming on, the day's proceedings terminated. Late on Monday afternoon, Mr. Barber made a short flight on the school machine. Then Mr. Ridley-Prentice, the manager of the Aeronautical Syndicate, mounted the machine for the first time, and accomplished several good straight flights, his experience as a Farman pilot evidently being of service to him.

Salisbury Plain.

ON Tuesday evening of last week the weather was splendid for flying, and seventeen pupils of the Bristol school were anxious to take every advantage of it. Three Bristol machines were out, and Messrs. Jullerot, Fleming and Busted found their time fully occupied in giving passenger flights. Prier was also in the air with the Bristol monoplane, flying in splendid style at a height of 2,000 ft., and finishing with a spiral *vol plané*. Captains Fulton, Burke and Massy, and Lieuts. Barrington-Kennett, Conner and Reynolds were also flying, the last-mentioned at a height of 1,000 ft. on the Bristol military biplane with Renault engine. Work was resumed early on Wednesday morning at the Bristol school, and Captains Hoare, Pitcher and Stuart progressed to straight flights, the last-mentioned slightly damaging the chassis in an unfortunate landing. In the evening Lieut. Blacker made the first test for his *brevet* in fine style, and good practice was put in by the other pupils at the Bristol School. In the afternoon Capt. Burke, Capt. Massy, Lieut. Conner, Lieut. Reynolds, and Lieut. Barrington-Kennett, each on a Bristol biplane, left for Oxford, and all got away all right, but Lieut. Conner returned for a slight adjustment to his machine. Thursday morning was misty, but it soon cleared off, and the Bristol school started work, Lieut. Blacker finishing the tests for his *brevet*. Good progress was made by all the pupils, both in the morning and evening. On Friday morning the school was at it again at 4 o'clock and Capt. Pitcher and Hoare each made good solo flights. M. Prier on the Bristol monoplane was up at a height of 1,500 ft., and came down by a fine *vol plané*. Although there was a stiffish wind in the evening a good deal of practice was put in at the Bristol school. Lieut. Conner was out on a new military Bristol biplane, making a cross-country flight. On Saturday morning this officer made a fresh start for Oxford at a quarter to five, and as soon as he was away the Bristol school started work. Captains Pitcher and Hoare each made useful flights, practising right and left hand turns, while Mr. Fleming, with one of his pupils, went for a cross-country flight. In the afternoon there were a number of visitors at the flying ground, including Sir George and Lady White, Messrs. Samuel White, White-Smith, and Thomas, and they witnessed quite a good deal of flying by Messrs. Pizey, Fleming, Jullerot, and Prier, the latter on the Bristol monoplane. Further practice was put in on Sunday evening, and several of the "fledglings" should be ready to take their *brevets* shortly. Lieut. Cammell was out on his Blériot, which has been in the repair shop for a week or two. His flight was at a height of 1,200 ft., and made with all his old skill. On Monday work started at half-past four, when Messrs. Busted, Pizey and Fleming gave



Lieut. Spencer Grey, who, on Monday of last week, qualified for his pilot's certificate at the Blondeau School, Brooklands, after only seven lessons. Mr. Blondeau has been extremely successful with his thorough tuition methods at Brooklands.

each of the pupils a couple of trips in the air. Mr. Harrison, a new pupil, went for three fine flights, making two complete circuits each time, and Mr. Gibson also had three trips, the third time rising to a height of 300 ft. and landing in good style. Lieut. Cammell was up for an hour on his Blériot. Although it was stormy in the evening, Messrs. Pizey and Busteed brought out the school machines, but had to give up after a short time owing to the bad weather. Although Tuesday morning was also dull and stormy, Messrs. Pizey and Fleming were instructing pupils, among whom are several new

ones, including Messrs. Wheeler, Cockerell, Smith-Barry, Lieut. Watts, Bowes, and Lieut. Newall.

Southport Aerodrome.

SINCE the 12th Mr. Gaunt has been able to put in daily practice, flying over the foreshore, and though nothing great has been achieved, everything points to the fact that he has evolved a low-powered machine of great stability with a good turn of speed, and he continues to make splendid landings.

BRITISH NOTES OF THE WEEK.

New World's and British Records.

ATTENTION is directed to our notes from the Royal Aero Club's Flying Ground at Eastchurch this week, in which particulars are given of a new world's passenger duration record set up by Lieut. Gerrard on the 17th inst., when he was flying for 4 hrs. 13 mins., and the new British duration record of 4 hrs. 58½ mins., made by Lieut. Samson, both performances being made on British-built Short machines.

The First British Lady Pilot.

THE first lady to obtain an aviator's certificate from the Royal Aero Club of the United Kingdom is Mrs. Maurice Hewlett, who made the necessary flights on Friday of last week at Brooklands. Mrs. Hewlett has been taught by M. Blondeau, with whom in partnership she has a flying school at Brooklands. M. Blondeau has taught twelve pupils, the first being M. Maurice Ducrocq. It is worth noting, too, that all these pupils have been taught without any accident and without a part of the school Henry Farman biplane being broken. The propeller which was put on at the Lanark meeting a year ago has just been taken off because it is chipped by stones, and it is now being repaired.

A British General Gets His Brevet.

THE British Army, as well as the French, can now boast a General as a certificated pilot, as on Wednesday, the 16th inst., Brigadier-General David Henderson—Chief Staff Officer to Sir John French—who had been learning under the name of Henry Davidson at the Bristol Company's School at Brooklands, made the necessary flights to get his certificate. He had only had one week's training, and the diary of the seven days' work will no doubt prove interesting to some of our readers. It is as follows:—

Wed., 9th inst.—2½ circuits passenger flight.
Thur., 10th.—Long passenger flight.
Fri., 11th.—Nil.
Sat., 12th.—Long passenger flights.
Sun., 13th.—1½ hrs. passenger flights. ¼ hr. rolling alone.
Mon., 14th.—20 mins. passenger flight. ¼ hr. rolling alone.
Another short passenger flight.
Tues., 15th.—2 circuits passenger flight, then alone for three flights, lasting a total of 35 mins., at an average height of 60 ft., rising to 150 ft. No straight flights, but went off at once and made circuits.

Wed., 16th.—Passed tests for his certificate.

It should help considerably at the War Office to have an officer of such high rank fully qualified as a pilot aviator.

Flying at Bristol.

THE residents of Filton, near Bristol, saw some very fine flying on Monday last, when Mr. Graham Gilmour was testing a re-built Bristol biplane. After making a preliminary circuit over the ground in the neighbourhood of the Bristol Co.'s workshops, he went off for some distance in the direction of Horfield, and returned by a very sharp left-hand turn. Meanwhile quite an audience had gathered on the field at the back of the workshops, and Mr. Gilmour treated them to some very clever trick flying. First diving sharply to the ground he then rose again at a steep angle, after which he banked the machine very considerably in some sharp turns. A long switch-back flight followed, and Mr. Gilmour concluded his fine performance by coming down at a very sharp angle, bringing his machine to rest exactly opposite the door of the shop where it was to spend the night. During the flight Mr. Gilmour took his hands from the controls, and waved a salute to the crowd beneath, afterwards travelling for some distance with his arms folded.

R.Ae.C. and the Dieppe-Brighton Races.

DOUBTLESS in view of the action of the Royal Aero Club in deciding not to sanction the proposed races from Shoreham to

Dieppe and back, the event will now be abandoned, or modified in some way. The Club's view is that a flight of nearly 80 miles over sea entails unnecessary danger.

Deperdussin Monoplanes in Scotland.

MR. W. H. EWEN, who reports considerable success with his flying school at Lanark, has now taken up the sole Scottish agency for the Deperdussin monoplane, and is arranging to give demonstrations on one of these machines in various parts of Scotland. He recently gave some fine flights at Haddington and Kirkcaldy, and was to have given an exhibition at Raith Flower Show on Friday and Saturday last.

The Stirling Monoplane Out Again.

MR. BARNWELL had his monoplane out at the farm of Cambusdrennie, Blair Drummond, on Wednesday of last week, and in the course of a short flight rose to a considerable height. The machine unfortunately sustained some slight damage on landing.

Mr. Hucks in Somerset.

ON Wednesday and Thursday of last week Mr. Hucks made some successful exhibition flights at Burnham, Somerset, and rather than risk delay on the railway through the strike he decided to fly over to Minehead, where he was to give an exhibition on Friday and Saturday. He covered the 25 miles between the two places satisfactorily, and made one flight at Minehead on Friday night and another on Saturday. In each case a good crowd of people was attracted, and the flights aroused a good deal of enthusiasm.



Brigadier-General David Henderson, pupil of the British and Colonial School at Brooklands, who took his flying brevet last week.

Mr. Cody Tries for the Michelin Cup No. 2.

HAVING mapped out a course of 125 miles, having as its points Laffan's Plain, Andover, Reading, Hendon and Brooklands, Mr. Cody set off on Saturday morning to try and win the British Empire Michelin Cup No. 2, the conditions for which call for the longest flight over such a course. He started from Laffan's Plain, but on the way to Andover ran into a dense fog and lost his way, but later picked up his bearings and reached Reading, where he had to come down through a leaky petrol tank.

The Ventnor Flying Week.

FROM a flying point of view the Ventnor week was somewhat of a fiasco, as from one cause or another most of the machines which it had hoped would have taken part were put out of commission. Mr. Valentine, on the Deperdussin machine which he had flown from Brooklands, saved the situation by making a fine series of flights on the 17th inst. Rising from the Dean Farm on the Whitwell Road, he made quite a long trip over the Downs, and also circled round the town.

Flying from Ventnor to Brighton.

ON Monday last Mr. Valentine left Ventnor on his Deperdussin monoplane, and steered for Brighton. Arrived at "London-by-the-Sea," he first circled the Palace Pier and then landed safely at the Shoreham aerodrome.

A telegram handed in at Ventnor as Mr. Valentine left was not delivered at Brighton until some time after the aviator arrived.

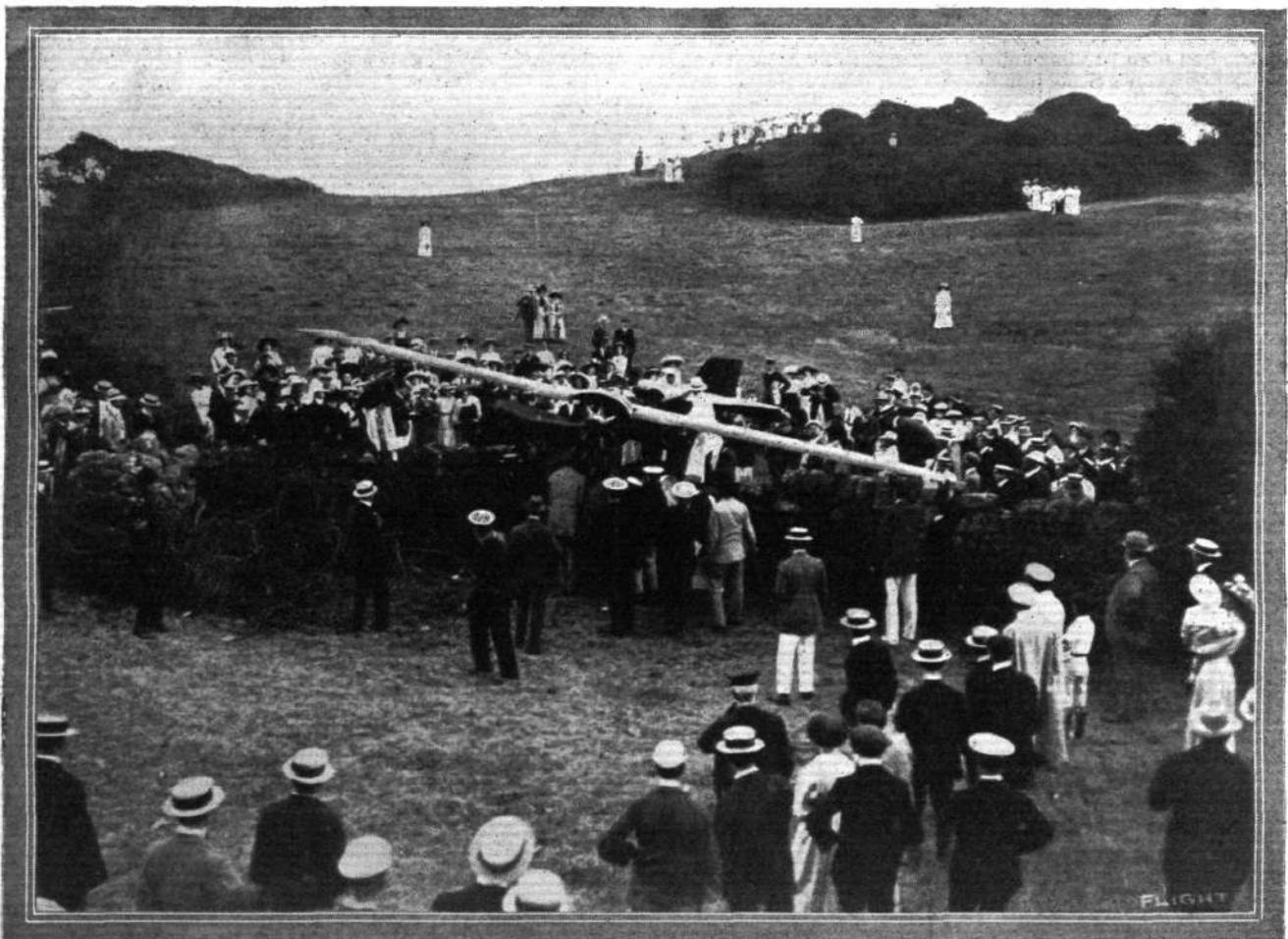
Learning to Fly in Seven Lessons.

SOME aviation pupils show a remarkable aptitude in handling flying machines in the air, especially when guided by careful



During the *Daily Mail* Circuit of Britain very severe work was put upon the aviators' cars which carried spares, &c., and raced after the flying men. M. Briere, who followed "Beaumont," the winner, round, used his 15-h.p. Blériot, which is seen above fully laden for the task, included in its freight being a complete Gnome engine and a large number of Blériot spares, which fortunately were not called into use. M. Briere's spin round the circuit was a "non-stop" record for the Blériot.

instructors. Although he had only had seven lessons at the Hewlett-Blondeau School at Brooklands, Lieut. Spencer Adair Grey, on Monday week, made the necessary tests for his *brevet* in masterly style, his confident handling of the machine speaking well for his future as a pilot.



FLYING IN THE ISLE OF WIGHT.—Mr. Valentine and his Deperdussin when landing at Ventnor came down on some very rough ground, and he is seen in our photograph having the machine lifted over a wall into a more suitable field for recommencing flying.

THE HENDON SHOOTING "AFFAIRE."

LAST Saturday's shooting outrage at the London Aerodrome is admittedly one of the most amazing happenings that has yet occurred in the annals of aviation.

Without warning of any kind one of the Blériot pupils, Hanot by name, whipped out a revolver, and after firing several shots at M. Chereau, Blériot's very popular London manager, and wounding M. Petit Pierre, turned the weapon upon himself and committed suicide.

Hanot, who was of Swiss nationality, had only joined the school a week previously, and he showed impatience because his progress had not been so rapid as he expected. Although he had repeatedly told the mechanics and poor Petit Pierre, the secretary and works manager, that he intended to get his fees refunded, he never showed the slightest signs of insanity. On Saturday afternoon he had a long chat with M. Chereau on the subject, but the latter naturally did not fall in with Hanot's wishes, as the tuition agreement form that Hanot had signed contained a clause to the effect that the fees could not under any circumstances be refunded. Although he appeared disappointed at not being able to get his fees returned he did not exhibit the slightest violence or issue any threat.

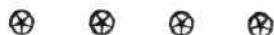
He stood a little apart from M. Chereau and M. Petit Pierre who were talking together. Suddenly under cover of his news-

paper, he drew out his revolver and fired point blank from scarcely a yard's range at them.

Poor Petit Pierre fell with a bullet in his thigh, but luckily neither M. Chereau nor any of the small crowd of people who were standing around were hit. Hanot then fired three shots below his heart. He fell and was covered with a blanket, but even under cover of this he drew a razor from his pocket and inflicted a long gash in his own throat. He was taken into a shed, where he was questioned, and it is surprising that although he must have been in agony, his replies were extremely clear.

Both Petit Pierre and Hanot were driven with all speed to the London Central Sick Asylum, and thence to St. Mary's Hospital, Paddington, where they both died within half an hour of each other on Sunday afternoon.

Petit Pierre was a perfect gentleman in all that he said and did, and he was one of the most popular habitués of the Hendon Flying Grounds. His poor wife, we know, has the sincerest sympathy of all our readers in her sad and sudden bereavement. A relief fund has been opened amongst the aviators, pupils and employés at Hendon. Should any reader desire to contribute to this fund we should only be too thankful to forward any expression of condolence to the right quarter.



SCHOOL AERO CLUB NOTES.

By ROBERT P. GRIMMER, General Secretary, British Federation of School Aero Clubs.

THE school aero club movement is making immense progress all over the world. My correspondents, both on the Continent and in Canada and the United States, inform me that school aero clubs have attained to an amazing popularity, and that they are constantly springing up in all quarters. Moreover, *mirabile dictu*, the school authorities of every country but our own are throwing themselves heart and soul into the work. But even in lethargic and unenthusiastic England, our cause is making definite progress, and hardly a week passes without another club helping to swell the ranks of the Federation. We are making a big effort to reach the hundred by the end of the year, and personally I think we shall just about do it. Various correspondents have asked me if we can admit individual members who have no club existing at their schools. Of course our main object is to secure the formation of school aero clubs, but as it is very hard lines on a fellow to be debarred from the many benefits that the Federation confers, owing to the illiberal views of his headmaster, I have great pleasure in stating that we shall welcome individual members at an annual subscription of 5s., the affiliation fee of an entire club being, of course, one guinea as before. Parents, when seeking fresh schools, can greatly advance our cause by making it a *sine qua non* that there should be a duly recognised aero club. If that course were more frequently adopted, I have the idea that many of our school authorities would become enthusiastic readers of FLIGHT and ardent devotees of aviation.

The splendid work that is being done for aviation by Mr. G. T. Cooper, at the Charterhouse, Godalming, is worthy of the highest praise. Those of my readers who, like myself, have been public schoolmen, will realise the truth of the statement that for apathy, indifference, or even hostility towards anything new, an English public school cannot be surpassed by anything in Christendom. In



AIRSHIP NEWS.

Naval Airship Still in its Shed.

SOME doubts which apparently arose at the last minute as to the buoyancy of the naval airship led to the arrangements for its reappearance in the open being abandoned after a day had been spent in getting everything ready on the 17th inst. It would appear that some difficulty was experienced, in view of the railway strike, in obtaining sufficient hydrogen to completely fill the ballonets.

"Le Temps" Completes Instruction Course.

THE first instruction course carried out with the little Zodiac dirigible "Le Temps," was completed on August 16th, and between July 3rd and that date thirty-six ascents were made, the total duration being 63 hours 50 mins., while the number of passengers was 165.

Long Voyages by Italian Dirigible.

ONE of the Italian military dirigibles—"P 2"—after making a satisfactory voyage from Venice to Milan, continued on the 15th inst.

face of every kind of obstacle that could be thrown in his way, Mr. Cooper has had the energy and determination to design and construct a man-carrying glider which is an unqualified success. The following are the principal dimensions of the "Cooper" glider: span of main plane 24 ft., chord of ditto 5 ft., span of tail plane 8 ft., chord 2½ ft., gap 4 ft., fore-and-aft length 18 ft., skids 8 ft. The woodwork is ash and bamboo, the planes are covered with Pegamoid, and there are Farman-type controls. Glides of 60-70 yds. have been obtained at a height of about 18 ft., and much better performances are expected in the near future. Mr. G. T. Cooper has succeeded in interesting quite a number of his friends in aviation, and he hopes to bring about the formation of an aero club next quarter. I sincerely hope that the brilliant example he has set will be followed by other public schools. Rassall, however, it is only fair to say, has had a flourishing aero club for some time.

I have great pleasure in announcing a further competition open to members of the Federation. Cash prizes of a guinea each for the best distances and durations accomplished by model aeroplanes are offered during the months of September and October. Distances must be measured with a tape from starting to landing points, durations will be taken by a stop-watch. Each flight performed for these prizes should be witnessed and authenticated by the club secretary (if the competitor is a member of a school aero club) and at least one master of the school, and a duly signed statement sent in. Any model, home-made or otherwise, may be used. Results will be announced in FLIGHT early in November. I strongly recommend intending competitors to commence practising as soon as possible, before the holidays are over, because, as I have had occasion to say before, there is no time like the present.



to Casale, Monferrato. After sailing 10 kiloms. from Milan a short stop was necessary in order to attend to the motor, but this was put right and the 100 kiloms. completed in 2 hours 20 mins., including the stop.

Another Italian Dirigible Voyage.

ON Monday another Italian military airship—"P 3"—sailed from its headquarters at Verona to Milan, where it was housed in the Forlanini hangar. Capt. Munari was in charge.

"Schwaben" Back at Friedrichshafen.

ON the 16th inst., the Zeppelin liner "Schwaben" left Oos, near Baden Baden, at half-past six, to return to the Zeppelin works. After crossing Lake Constance, she came to rest at Friedrichshafen at a quarter to eleven.

"Parseval VI" Back to Berlin.

ON Monday morning the "Parseval VI," which had arrived at Neu-Strelitz after being inspected by the Duke of Mecklenburg-Strelitz, went on to Johannisthal. It arrived safely after a voyage of three and a quarter hours.

FOREIGN AVIATION NEWS.

The World's Altitude Record.

A CABLE from America states that on Saturday last at Chicago Oscar Brindley on a Wright biplane beat the world's height record by going up to 11,726 ft. It was subsequently found that the figures were not correct, but on Monday Lincoln Beachy was stated to have reached 11,578 ft. (3,527 metres), beating Capt. Felix's record of 3,400. Confirmation of these figures will be awaited with interest.

New Passenger Height Record.

ACCOMPANIED by two friends, each weighing over 75 kilogs., and carrying 95 kilogs. of petrol, &c., Moineau at Douai on the 17th inst., succeeded in piloting a Breguet machine to a height of 900 metres in twenty minutes.

A Michelin French Military Prize.

A LETTER has just been addressed to the President of the French Aero Club by the Michelin Tyre Co. placing a sum of 150,000 francs at the disposal of the Club to be distributed in four prizes to be known as the Michelin Aero Target Prizes. A prize of 50,000 francs will be given to the aviator who in a single flight on or before August 15th, 1912, shall have dropped the greatest number of projectiles into a circle having a radius of ten metres.

The aviator must fly at a minimum altitude of 200 metres, and drop singly five projectiles, each weighing at least 20 kilogs., while passing several times over the mark.

In the event of several aviators having dropped the same number of projectiles into the circle before August 15th, the winner will be the one whose projectiles are nearest the centre.

Another prize of 25,000 francs will be given, under the same conditions, to the aviator who, flying at a minimum height of 1,000 metres, shall have dropped his projectiles within a rectangle 100 metres in length and 10 metres in width. In the event of several aviators dropping the same number of projectiles within the prescribed limit, the winner will be the one whose projectiles, as before, are nearest the centre.

Two other prizes will be given on August 15th, 1913, but the Michelin Company reserve the right to alter the conditions while retaining the original idea. Only French civilian or military aviators are eligible to take part.

The Belgian National Circuit.

THE persistency of the bad weather led to the last stages of the Belgian National Circuit taking over a week to complete. Although the fourth stage from Blankenberghe to Antwerp was officially started at 5 o'clock on the morning of Sunday week, it was not until the following Thursday morning that the competitors were able to get away. Contenet was the first up at half-past four followed by Parisot, d'Hespel, Tyck, and Lanser; d'Hespel was the first to arrive at Ghent on his Deperdussin machine, followed by Tyck and Parisot; Lanser, after flying a short way, returned to Blankenberghe, and in making a second attempt to get away broke his propeller, while Contenet came down at Thourout. Staying at Ghent only a short time Tyck set off for Antwerp and reached there safely as also did Parisot; d'Hespel in landing at Ghent damaged a wheel and the repairs delayed him until the evening, when, however, he flew over to Antwerp in half an hour. On the following day Lanser set out to fly to Blankenberghe from Antwerp, but the strong wind forced him to come down at Eeclo. At Antwerp a local meeting was in progress, the brothers Olieslagers, Verrept, and Molla and others making several good flights. The start for the last stage from Antwerp to Brussels was officially given on Sunday morning for 4.30, but Tyck was the only one to start, at 5.5. In view of the strong winds, d'Hespel and Parisot decided not to go on. As a matter of fact, Tyck did not succeed in getting through, having to come down at Vertryck, close to Louvain. He, however, reached Brussels on Wednesday morning.

Capt. Felix at Chambéry.

ON the 17th inst. Capt. Felix continued his trip to the Alps from Ambergieu, and reaching Chambéry went on to St. Pierre d'Albigny. He only had a short rest, and then went up again to a



Miss Harriett Quimby, a native of California, who has just been awarded the pilot's certificate of the Aero Club of America, this being the first woman's certificate issued by the Club. Miss Quimby passed her tests at Mineola, Long Island, on a Moisant monoplane.

height of 2,500 metres. In coming down over Isere he chose a field which was too small, and in pulling up sharply the machine overturned, sustaining considerable damage.

Fast Flying on a Deperdussin.

AT the Deperdussin school at Betheny Chief Instructor Prevost made a flight on the 17th inst. at a height of 2,000 metres, and in a second trip went up to 2,500 metres, afterwards flying to Rheims and circling the Cathedral there. In the afternoon he paid a visit to Mourmelon, and did the out and home trip in three quarters of an hour.

Ladougne Tries a New Engine.

LADOUGNE on a new Goupy machine, with which he intends to try for the Michelin Cup and also for the French military superior certificate, flew over from Juvisy to Etampes on the 17th inst. The machine is fitted with a 6-cyl. Chenu motor, which is said to give the biplane a speed of 110 k.p.h. On the following day Ladougne flew back to Juvisy in order to change the radiator of his machine, and returned to Etampes on Sunday evening.

Flying to Lawn Tennis.

BEING entered for the Military Lawn Tennis Championship, Lieut. Grailly flew the other day from Buc to Compiegne on his R.E.P. machine. The competition was concluded on Thursday of last week, when the officer, having won the championship, once more mounted his machine, and flew over to Chalons in an hour and a quarter.

A New Monoplane at Issy.

A SUCCESSFUL trial was made with a new Kauffmann monoplane at Issy on the 19th inst. It covered three circuits of the ground at a height of 12 metres, and although it was only fitted with a 28-h.p. Anzani engine its speed was about 90 k.p.h. The span of the machine, which resembles a cross between a Blériot and a Nieuport, is 8.8 metres.

Leblanc Gets a Ducking.

WHILE experimenting with a new Blériot machine at Hardelot on the 17th inst., Leblanc was over the sea at a height of 600 metres when the motor began to fail. There was nothing for it but to come down on to the surface of the sea, but fortunately M. Leblanc's plight was seen by some fishermen, who brought him and the machine ashore, both little the worse for their adventure.

From Arras to Boulogne.

HAVING arranged to take part in the Boulogne meeting Max Pourpe decided to fly over to fulfil his engagement on the 17th inst. The journey, on a Blériot monoplane, occupied one hour and twenty minutes.

Long Flight by Madame Herveu.

THE first attempt in connection with the Coupe Femina for 1911 was made on the 19th inst., at Etampes, by Madame Jane Herveu. On her Gnome-engined Blériot she was in the air for an hour and three-quarters, and covered 101.6 kiloms. She then had to come down, owing to the military requiring the ground to be cleared for manoeuvres. The cup was won last year by Mdle. Dutrieu, who covered 167.2 kiloms. on a Henry Farman machine.

Captain Camine Qualifies on an R.E.P.

THE list of officers who have gained the French Army superior aviation certificate is steadily mounting up, and one of the latest to qualify is Capt. Camine, who made his third test flight on an R.E.P. machine on the 19th inst. His course was from Buc to Coltainville, near Chartres, and back, the double journey being covered in 1 hr. 10 mins. Capt. Camine was originally an Antoinette pupil, and took his ordinary *brevet* on a machine of that make last February.

Another French Military Deperdussin Pilot.

USING a Deperdussin monoplane fitted with a 50-h.p. Gnome engine, Lieut. Tretarre had no difficulty in passing the last two tests for his military *brevet* on the 18th inst. He made a start at half-past five in the morning, and with his machine going at a speed of over 100 k.p.h. he had completed the two tests within three hours, taking a rest of over an hour between them. During the first flight his height varied from 1,200 to 1,800 metres, while in the second trip he climbed up to 2,000 metres.

Allard Falls into the Sea.

AFTER making one satisfactory flight along the coast on the 19th inst. Maurice Allard set out from Paris Plage on his Caudron biplane to make a second trip. While he was between Paris Plage and Merlimont he came down in the sea about 300 metres from the shore and had to wait for forty minutes until he was rescued by the

lifeboat. The machine was undamaged except for a broken propeller while Allard was little the worse for his adventure.

The Boulogne Meeting.

THE two days' meeting at Boulogne, although quite a small affair, met with considerable success, Rene Caudron and Delaet, on Caudron biplanes, and Pourpe and Darioli, on Blériot monoplanes, each making good flights along the esplanade and over the sea on Sunday and Monday. On Sunday afternoon Pourpe disappeared for some twenty minutes out to sea and met the boat from Folkestone in mid-Channel. On Monday afternoon there were several occasions when three machines were seen in the air at the same time.

French Officers Fly Back to Headquarters.

ON the 18th inst., Capt. Eteve and a passenger left Nevers on his Maurice Farman biplane to fly back to Etampes, which was safely reached after making a stop at Montargis. Lieut. Menard—also with a passenger, but on a Henry Farman biplane—started off at the same time, but had to come down at Briard owing to a broken oil-pipe. After repairing this he went on, and reached Montargis safely. Lieut. Cheutin, on the following day, left for Etampes, but motor trouble brought him down at Lere, 10 kiloms. from Cosne.

Vedrines in a Balloon.

ON the 20th inst., at Dieppe, Vedrines had a new experience in the air, being taken up for a balloon trip by M. Pierron. He greatly enjoyed the voyage, which he humorously referred to as his *baptême de l'air*.

Vedrines Gets an Involuntary Bath.

AFTER making a successful second journey from Issy to Deauville on Wednesday of last week, Vedrines remained in the air to carry out some evolutions over the sea, greatly to the delight of the crowd which had gathered on the beach. Suddenly, however, his petrol gave out, and he was forced to descend on to the water. Fortunately he was not far from the shore, and a number of boats put out to pick him up. He was brought to land little the worse for the fall, except for a bruise on the forehead, but the machine was somewhat damaged.

Sommer at Work on a Stabiliser.

EVER on the look-out for improvements for his machines, M. Roger Sommer has of late been turning his attention to an automatic stabiliser. The first experiments with the apparatus fitted to a biplane were made on the 19th inst., when the machine was in the air for an hour and gave very good results. During several straight flights, M. Sommer took his hand from the controls, but the machine continued to fly satisfactorily.

50 Miles in 58 Minutes.

ACCOMPANIED by Lieut. d'Abrantes, Marcel Chambenois flew on the 18th inst. from Chantilly to Coulommiers in 58 mins. on a Borel-Morane monoplane. The distance between the two points is 80 kiloms. (50 miles).

Flying Along the French Coast.

WISHING to take part in the flying at Boulogne, Caudron mounted one of his little biplanes on Saturday last with a friend as passenger, and flew along the coast from Crotoy to Boulogne in 1 hr. 3 mins.

Flying over Charleroi.

USING his Farman biplane, Felix Lamblotte on the 15th inst. flew over the Exhibition at Charleroi, and afterwards over the industrial quarter of the town. He was in the air for fifty-four minutes, and the portion of the flight during which he was over the forest of tall chimneys of the factories was quite thrilling.

A Long Flight in Germany.

LEAVING Darmstadt, Lieut. Hiddessen, accompanied by Herr Schimpff, at twenty minutes past seven on the 16th inst., passed over Frankfurt, Homburg, Ob Ursel and Cronburg, and returned to Darmstadt at 8.53.

An American Lady Aviator.

THE number of certificated aviators among the gentler sex is being gradually added to. The first to obtain her certificate under the new rules was Madame Driancourt, at the French Caudron School, but soon after her was Miss Harriet Quimby, of California, who qualified on a Moisant monoplane at Mineola, N.Y., on August 1st. Miss Matilda Moisant, sister of the late J. B. Moisant, has also qualified for a pilot's licence on a Moisant monoplane, and Miss Blanche Scott should qualify shortly.

The Chicago Meeting.

ALTHOUGH but scanty details have come across the Atlantic, the meeting at Chicago would appear to have been a great success from a flying point of view, although it is feared there will be a heavy financial loss.

A 14-mile race across Lake Michigan was won the 17th inst. by Sopwith on a Blériot, Simon being second on a Moisant monoplane, and Beachy on a Curtiss biplane third. J. Beattie on a Curtiss beat the passenger record by flying 3 hrs. 45 mins. Rodgers won the duration prize, his total time in the air being 25 hours. His winnings amounted to \$10,000, while Sopwith is credited with lifting \$15,000. Bud Mars, who was, it will be remembered, recently reported by cable to be killed, was amongst the entrants who were to take part.

The St. Louis-New York Flight.

CONTINUING his journey from St. Louis to New York, Harry Attwood left Chicago on the 16th inst. and arrived at Toledo. The following day he got on as far as Cleveland, while on Saturday he reached Erie. Sunday saw him at Buffalo, and on Monday he got to Lyons in New York State, and hoped to arrive in New York on Wednesday, thereby covering the 1,455 miles in eight days.

£10,000 for a Trans-American Flight.

THE group of American newspapers under the control of Mr. Hearst have offered a prize of £10,000 for the first aviator to fly across America from the Atlantic to the Pacific. Although the conditions have not yet been announced, Harry Attwood, who has made some very good cross-country flights in America, has announced that he will make an attempt to win the prize in October.

A Farman over Buenos Ayres.

CATTANEO will not now have matters all his own way in Argentina, as Paillette is meeting with considerable success on his Farman biplane. On the 21st inst. he was out on it for an hour, and was flying over the city of Buenos Ayres.

CORRESPONDENCE.

(Owing to pressure on our columns our usual correspondence has had to be held over.)

Aeroplanes and Gusts.

[1322] Mr. S. L. Walkden's article deals very clearly and simply with the action of gusts on aeroplanes, but may I point out what seems to me to be an error. He states that the line, A B, represents the acceleration due to gravity. If this were so any particular gust would have the same effect on any aeroplane whether the latter had a speed of 60 m.p.h. carrying 6 lbs. per sq. ft., or had a speed of 40 m.p.h. and carried about 3 lbs. per sq. ft. This is obviously not so. The line, A B, it seems to me, represents the downward acceleration of the air by the planes, which is directly proportional to the loading.

From this we may say that *the aeroplane least affected by gusts is the one carrying the greatest weight per sq. ft. independent of its speed*, though of course the machines with the higher loading generally have the greater speed.

Thus by increasing the loading there is less likelihood of the machine finding a "hole in the air."

Sparkbrook, Birmingham. J. W. W. WILLSTROP.

Vortex Principle of Flight.

[1323] I am not surprised that Mr. Cooper, even with all the authorities at his fingers' ends, found himself unable to explain the means by which the gadfly sustains and propels itself in the air. He is not the first, by any means, who has so failed.

Mr. Cooper never succeeded in grasping the meaning of my article, or he would have realised, not only the futility of his experiment with the tin plate and penholder, but that the sole effect of his contentions in regard to insect flight, could he have proved them to be correct, would not have been to depreciate but to *enhance* the value of the Vortex propeller. Assuming for the moment that my explanation of the flight of the fly is merely a theory, no one can fail to see that I credit the fly with the possession of the greatest lifting power that Nature could possibly bestow—the power of the whirlwind. Every engineer knows the enormous advantage of rotary motion over reciprocating motion, especially in the case of fans for producing powerful currents of air. There is no reason, that one can see, why Nature should *not* use a rotary motion, and thus obtain this advantage, but if, from any cause, she were compelled to make use of a less efficient motion, it is simply inconceivable that she should deliberately cause the wing action of the larger humble-bee (for instance) to take place entirely above the level of the body, where any lifting power it might possess would be employed to the least advantage. And this in the case of an

insect with high specific gravity, large body and small wings, which can ill afford to waste power. Therefore, even on the supposition that the flight of the fly on the vortex principle was an unproved theory, instead of a scientific fact, there existed no reason why I should take the trouble to refute the various theories put forward by Mr. Cooper and his authorities, seeing that I possessed a lifting device better than the best within Nature's reach, and far superior to any possible vibratory propeller.

It is proved by working model that the Vortex propeller does actually produce powerful vortex and whirlwind currents, and does lift itself into the air. This has been repeatedly demonstrated before witnesses. It is proved by working model that a vane, shaped like the wing of a fly, to which a rapid rotary motion is given, also produces similar currents, although not so powerful. It must therefore produce a lifting force, although of less efficiency. Its motion is vibrationless, and in appearance is identical with that of the fly's wing when seen in action. Every other motion of such a vane, in my hands at least, produces intense vibration, and none of them gives any lifting reaction unless under conditions which clearly do not exist in the case of the insect.

The chain of evidence, upon which Mr. Cooper laid such stress, falls to pieces at a touch. It is not possible to trace a figure of eight on a plane surface by means of the free end or tip of a swinging lever, such as the fly's wing. The only figure that can be produced is a circle. Photographs of motion in more than one plane are most misleading. The commonest oscillating propeller is the tail of the fish. If the wings of flies obtained their reactions as the fish does, their bodies would be forced *downwards*, not lifted. The whole question is one of mechanics. The proof that the wing rotates and produces a vortex is complete in every detail. The evidence that it does not is conspicuous by its absence.

T. A. DRING.

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15,576. E. H. MEDEN. Flying machines.
22,844. J. P. NOWOTNICK. Steerable airships of rigid type.
24,148. T. M. CREPAR. Flying machines.

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Published August 24th, 1911.

3,943. O. SACK. Aeroplane.

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